Annual Operations and Maintenance Report for Rockwool Industries, Inc. Federal Superfund Site 1741 Taylors Valley Road Belton, Bell County, Texas

Prepared for Texas Commission on Environmental Quality

August 25, 2014

Contract No.
582-14-40670
Work Order No.
327-0012

Submitted By:

Beronica Lee-Brand

Beronica Lee-Brand, P.G.
Senior Project Manager

Daniel B. Stephens & Associates, Inc.

4030 W. Braker Lane, Suite 325, Austin, Texas 78759

Table of Contents

List of Tables

List of Figures

List of Appendices

Annual Operations & Maintenance Report

1. Executive Summary

Daniel B. Stephens and Associates, Inc. (DBS&A) has been contracted by the Texas Commission on Environmental Quality (TCEQ) to perform operations and maintenance (O&M) activities at the Rockwool Industries, Inc. (RWI) Federal Superfund Site located in Belton, Bell County, Texas. The overall objectives of the O&M phase of the project are to perform long-term monitoring and O&M activities in accordance with the Operations & Maintenance Plan and the Addendum No. 2 to the April 26, 2011 Field Sampling Plan (FSP2). Semi-annual groundwater monitoring and other inspection and maintenance tasks are to be performed as required in support of the Record of Decision (ROD) for the Rockwool Industries Inc. Federal Superfund Site (EPA, 2004) in order to ensure the continued protectiveness of the selected remedy.

In order to assess the continued protectiveness of the selected remedy at the RWI Site and as part of the long-term monitoring and O&M activities, groundwater samples were collected from the network of 23 existing groundwater monitoring wells and submitted to the selected analytical laboratory for chemical analysis of the chemicals of concern (COCs), which consist of inorganic metals (antimony, arsenic and lead). In addition to the collection of groundwater samples, groundwater monitoring tasks included groundwater level measurement of selected monitoring wells, an evaluation of the condition and integrity of each monitoring well gauged, and field measurement of groundwater in each monitoring well for pH, dissolved oxygen, conductivity, temperature, and oxidation-reduction potential.

On-going repairs to the MATCON, as authorized in a separate TCEQ work order, will be reported under separate cover.

The following Annual O&M report documents the aforementioned completed groundwater monitoring and presents the field data and photographic documentation as collected, the updated site map, isoconcentration maps, groundwater surface contour maps, the laboratory results of groundwater sample analysis and respective data tables, laboratory data review and validation memoranda, a discussion of the findings and conclusions, and recommendations for future activities.

2. Introduction

2.1 Project Background

In 2010, the TCEQ contracted DBS&A to perform O&M activities in the form of semi-annual groundwater monitoring and other inspection and maintenance tasks outlined below to ensure the continued protectiveness of the selected remedy at the RWI Federal Superfund Site located at 1741 Taylors Valley Road, Belton, Bell County, Texas. Figure 1 (Site Location Map) of this report presents a map illustrating the location of the RWI facility and the surrounding area.

The RWI Site includes an approximately 100-acre tract of land in a primarily industrial area located one quarter mile east of Interstate 35 in Bell County. The RWI Site is bounded to the north by the Leon River and to the south and west by Nolan Creek. East Belton Cemetery and other commercial and undeveloped private properties lie to the west of the RWI Site and light industrial properties lie to the east.

The RWI Site is broadly divided into three main areas; the North Property, the Central Property, and the Non-Process area as illustrated in Figure 2 (Site Map). The North Property and adjoining Geer Property-Cemetery area constitute a 14-acre tract of land on the north side of Taylor's Valley Road. The Central Property includes Operable Unit 2 (OU2) and forms a 47-acre tract of land south of Taylor's Valley Road extending to FM-93. The Non-Process area is the 40-acre tract of land south of FM-93 extending southwest to Nolan Creek. During the remedial investigation, the Non-Process area was determined to be free of contaminant impacts.

Former consultants for the project executed the remedial action (RA) at the RWI Site as defined in the ROD and in accordance with the accepted remedial design (RD). The RA consisted of activities utilized to eliminate human and ecological exposure to contaminated waste emanating from the RWI Site. RA processes included drainage improvement activities, waste and soil excavation and removal and the placement of clay and topsoil caps over the contaminated areas. The clay/topsoil covered areas were marked and surveyed for institutional control and replanted with vegetative cover. The RA also consisted of the construction and capping of a containment cell designed to contain excavated waste from areas of the RWI Site.

Additionally, stabilization and protection of the Leon River bank was accomplished utilizing articulating concrete blocks (ACBs) and the evaporation lagoon infrastructure consisting

primarily of polyvinyl chloride (PVC) piping, which was previously demolished. In addition, several groundwater monitoring wells were plugged and abandoned during RA activities, including MW-1, MW-2, MW-3, MW-4A, MW-6, MW-8, MW-12, MW-23, MW-31-90, MW-32-90 and DW-1. Groundwater monitoring on the reduced number of wells commenced in mid-2006. While remediation of the shallow perched aquifer was not a part of the RA or RD, it was previously determined that contaminated groundwater was seeping from this aquifer into the Leon River and Nolan Creek, thereby creating a human health and ecological exposure risk (EPA, 2004). Therefore, groundwater samples are being collected from the shallow aquifer for chemical analysis of the COCs as part of the long-term monitoring and O&M activities.

2.2 Project Objectives

The purpose of this report is to document groundwater monitoring activities as approved by the TCEQ Remediation Division work order (No. 327-0012) for the RWI Site. The sampling activities were conducted by DBS&A as provided for and pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 United States Code (USC) §9601, et seq., and, to the extent practicable, the National Oil and Hazardous Substances Contingency Plan, 40 C.F.R. Part 300 (NCP).

Groundwater monitoring activities described in this report were performed by DBS&A under the TCEQ Assessment, Investigation and Remediation Services (AIRS) Contract (No. 582-14-40670) and in accordance with the February 11, 2011 Rockwool Industries, Inc. Superfund Site Operations & Maintenance Plan (DBS&A, Feb 2011); the January 17, 2014 Addendum No. 2 to the April 26, 2011 Rockwool Industries, Inc. Federal Superfund Site Field Sampling Plan (FSP2) for Operations & Maintenance Activities (DBS&A, January 2014); the applicable TCEQ Superfund Program Standard Operating Procedures (SOPs); and the TCEQ Quality Assurance Project Plan for the Federal Superfund Program (Revision 10.0, Q-TRAK# 13-462) (TCEQ, 2013).

The primary objective of the groundwater monitoring program is to compare the analytical results from groundwater sample analysis to the human health Preliminary Remediation Goals (PRGs) established in the ROD (EPA, 2004) for the COCs in order to ensure the continued protectiveness of the selected remedy and to determine the level of contamination in groundwater. The concentrations of the PRGs for the COCs in groundwater, as defined in the

RWI Site FSP2 are 6 micrograms per liter (µg/L) for antimony, 10 µg/L for arsenic, and 5 µg/L for lead (DBS&A, 2014). The sample measurement performance criteria for analytical data generation and acquisition are specified in Group B of the TCEQ Federal Superfund Program QAPP (Revision 10.0, Q-TRAK# 13-462) (TCEQ, 2013).

Specific inspection and maintenance activities have been established in order to ensure that the selected remedy remains protective of human health and the environment. The site inspection and maintenance activities have been developed in accordance with Texas Administrative Code (TAC) requirements for closure and remediation of industrial solid waste and municipal hazardous waste landfill facilities per 30 TAC §335.8 and the Wilder Construction Company MatCon® Operation and Maintenance Plan for Rockwool Superfund Site (Wilder, 2006).

Periodic inspections will be performed at the RWI Site to ensure that the cover and drainage controls installed in the Geer Property-Cemetery Area, North Property, and Central Property areas are performing as designed, and to document that regular maintenance and repairs are performed as needed. Visual inspection of the soil covers will be performed to document any evidence of settlement, cracking, animal holes, pooled water, erosion, or deep-rooted vegetation, and indications of a dense grass mat. Inspections have been completed and a site meeting with the TCEQ Project Manager was conducted in July 2014. MATCON repairs are on-going and will be reported under separate cover.

As documented in the O&M plan, surface water drainage controls will be kept clear of rocks and debris so that the full capacity of the drainage system is available during large storm events. The drainage system may require periodic cleaning to remove sediment and debris accumulation. Small-scale efforts should be performed during each inspection, whereas larger scale efforts should be performed by a licensed subcontractor. Berms for the drainage ditches and storm water detention basin must be maintained to ensure stability and functionality of these features. The ACBs along the Leon River bank will be inspected to identify displacement or loss of the blocks, the loss of continuity of interlocking blocks, and any evidence of instability.

Results of site maintenance and inspection activities will be reported under separate cover.

Groundwater monitoring wells will be inspected for any evidence of damage and tampering, and to ensure that the protective covers are securely locked and that the well identification number

is clearly visible. Exterior conditions of the monitoring wells to be verified include well visibility and accessibility, casing and cap condition, signs of unauthorized tampering, and proper operation of the security padlocks. Any evidence of vegetation overgrowth will also be noted.

Security and control devices at the site include fences, locked gates, and posted signs. Maintenance of these site control devices is necessary to prevent unauthorized access and vandalism. Fencing will be inspected for holes, damaged posts, and broken or missing wire. Warning signs along the Institutional Control Boundary will be clearly visible. The intended future use of the RWI Site and adjacent property is industrial or commercial; therefore, site inspections will also document changes in land use that might affect the protections afforded by the remedy.

3. Groundwater Monitoring

DBS&A performed four "quarterly" groundwater monitoring events in fiscal year 2014 (FY14): January 2014, March 2014, May 2014, and July 2014. Tabulated data, including groundwater level measurements and laboratory analytical results, collected during the groundwater monitoring events are located in Table 1 (Summary of Groundwater Analytical Results) and Table 2 (Water Level Measurements and Groundwater Elevation Data) of this report. Photographic documentation collected during the groundwater monitoring events is provided in Appendix 1 of this report. Laboratory analytical data reports, including the data review and data validation memoranda and usability summary, are located in Appendix 2 of this report. Field Notes from the four events are provided in Appendix 3.

3.1 January 2014

On January 21-23, 2014 DBS&A conducted quarterly groundwater monitoring activities at the RWI Site. Figure 3a of this report presents a site map depicting the groundwater surface gradient and flow direction at the site as interpreted from data collected during the January 2014 groundwater monitoring event. Figure 4a of this report presents contaminant concentrations found during the January 2014 event and isoconcentration contours, if applicable. However, due to the extreme variability in analytical results, often several orders of magnitude between

adjacent wells, it was not possible to determine isoconcentration lines for the entire site or for all the analytes.

Groundwater sample collection, quality assurance procedures and laboratory analyses were completed pursuant to the Rockwool Industries, Inc. Superfund Site Operations & Maintenance Plan (DBS&A, 2011); the January 17, 2014 Addendum No. 2 to the April 26, 2011 Rockwool Industries, Inc. Federal Superfund Site Field Sampling Plan (FSP2) for Operations & Maintenance Activities (DBS&A, January 2014); the applicable TCEQ Superfund Program Standard Operating Procedures (SOPs); and the TCEQ Quality Assurance Project Plan for the Federal Superfund Program (Revision 10.0, Q-TRAK# 13-462) (TCEQ, 2013).

3.1.1 Groundwater Level Measurement

Prior to groundwater sample collection, each monitor well was visually inspected in order to verify the integrity of the protective casing and surface seal. In addition, the presence and condition of the security padlocks, hinged protective access covers, and monitor well plugs were verified. Depth-to-groundwater and total depth of selected monitoring wells were measured and recorded preceding the sampling of each well using a water level meter in accordance with TCEQ Superfund Program SOP No. 7.1 (Water Level/Sediment Measurement). Water level measurement data collected during this semi-annual groundwater monitoring event is located in Table 2 (Water Level Measurements and Groundwater Elevation Data) of this report. Calculated groundwater surface elevations are also presented in Table 2 of this report.

3.1.2 Groundwater Sampling Methods

A Horiba model U-52 Multi-Parameter Water Quality Meter was utilized for collecting groundwater quality measurements, including pH, dissolved oxygen (DO), conductivity, temperature, and oxidation-reduction potential (ORP) in the field. The water quality meter was calibrated each day according to the manufacturer specifications prior to the collection of groundwater quality measurements. Water quality measurements were collected prior to the collection of groundwater samples and in accordance with TCEQ Superfund Program SOP No. 7.5 (Measurement of Field Parameters).

In order to meet groundwater monitoring objectives, each monitor well was purged according to TCEQ Superfund Program SOP No. 7.4 (Micro Purging a Monitoring Well) prior to sampling and groundwater samples were collected from each monitor well in accordance with TCEQ Superfund Program SOP No. 7.8 (Groundwater Sampling Using a Low-flow Technique). Wells with insufficient water column for purging were sampled using factory-sealed bailers per instructions received from the TCEQ PM via a phone call on July 11, 2012 and in accordance with TCEQ SOP No. 7.2 (Purging a Monitoring Well with a Bailer) and TCEQ SOP No. 7.6 (Groundwater Sampling Using a Bailer).

Table 3.1 Well Sampling Method (January 2014)

Monitor Well ID	Sampling Method	
	Low-flow pump	Bailer
MW-7	X	
MW-9	X	
MW-10	X	
MW-11	X	
MW-14	X	
MW-15	DRY	DRY
MW-16	DRY	DRY
MW-17	X	
MW-18	X	
MW-19	X	
MW-20	X	
MW-21	X	
MW-22	X	
MW-24-90	X	
MW-27-90	X	
MW-28-90	X	
MW-29-90	X	
MW-30-90	X	
MW-33-90	X	
MW-34-90	X	
MW-35-90	X	
MW-37-90	X	
MW-38-90	X	

Groundwater sample containers and chemical preservative, nitric acid (HNO_3), were provided by DHL Analytical. Unfiltered groundwater samples were collected from monitor wells containing sufficient water in accordance with the RWI Site FSP2 (DBS&A, January 2014) and the methodology described in the applicable TCEQ Superfund Program SOPs. Groundwater

samples were submitted to DHL Analytical for inorganic metals (arsenic, antimony, and lead) analysis using EPA SW-846 Method 6020A.

3.1.3 Groundwater Sample Analysis

A completed chain-of-custody for 26 groundwater samples collected from the RWI Site on January 21-23, 2014 was submitted to DHL Analytical on January 24, 2014 for inorganic metals analysis by EPA SW-846 Method 6020A. DHL Analytical laboratory is recognized by the National Environmental Laboratory Accreditation Program (NELAP) and certified by the TCEQ (Certificate No. T104704211-13-11).

Laboratory preparation of the aqueous samples for inorganic metals analysis by EPA SW-846 Method 6020A was performed by DHL Analytical following EPA SW-846 Method 3005A as referenced in EPA publication *SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.* Sample preparation by SW-846 Method 3005A is a laboratory acid digestion procedure used to prepare water samples for analysis by inductively coupled plasma-mass spectrometry (ICP-MS). The groundwater samples were analyzed by DHL Analytical using SW-846 Method 6020A, which involves ICP-MS to determine the concentration of multiple chemical elements, including the subject COCs for this project, in aqueous samples.

Matrix spike (MS) and matrix spike duplicate (MSD) samples are spiked with known concentrations of the chemicals of concern prior to sample preparation and analysis at the laboratory and are used to evaluate the bias of the sample matrix. The MS/MSD samples were collected at predetermined sample locations suspected to be contaminated with low to medium levels of COCs, as outlined in the FSP, and submitted to DHL Analytical for chemical analysis.

3.1.4 Quality Assurance/Quality Control Samples

Quality assurance and quality control (QA/QC) samples were collected in the field and analyzed by DHL Analytical in order to serve as a check on sampling and analytical precision, accuracy, and representativeness. QA/QC samples were collected in accordance with TCEQ Superfund Program SOP No. 6.5 (Collection of QA/QC Samples). Laboratory analytical results from the QA/QC samples collected during the January 2014 groundwater monitoring event are located in Table 1 (Summary of Groundwater Analytical Results) of this report. General descriptions of the

QA/QC samples collected are presented in the sections below, while QA/QC analytical results are discussed in detail in Section 4 (Analytical Results) of this report.

3.1.4.1 Field Duplicate Samples

Field duplicate samples were collected at the same time and from the same source as the primary sample collection point and submitted as separate samples for confidentiality purposes to the laboratory for COC chemical analysis in order to evaluate sampling and analytical precision. The field duplicates were collected at a predetermined sample location known to be contaminated or suspected to be contaminated with COCs immediately after the primary environmental sample was collected. During the January 2014 groundwater monitoring event, field duplicates were collected from monitoring wells MW-35-90 (DUP-1) and MW-34-90 (DUP-2).

3.1.4.2 Equipment Rinsate Blank Samples

Equipment rinsate blank samples were collected during sampling activities in order to assess the effectiveness of equipment decontamination procedures. In accordance with FSP1, one equipment rinsate blank per equipment type per medium per day was collected when non-dedicated sampling equipment was used. Three equipment rinsate blanks were collected during the January 2014 sampling event. ER-1 was collected on January 21st, ER-2 was collected on January 22nd, and ER-3 was collected on January 23rd.

3.1.4.3 Temperature Blank Samples

A temperature blank demonstrates that the environmental samples have been properly preserved at the required temperature (≤ 6°C) until receipt at the laboratory. A temperature blank for the January 2014 groundwater monitoring event was supplied by DHL Analytical as part of the sampling supply kit and was placed in the cooler with the samples prior to delivering the samples to the laboratory for analysis. Upon receipt at the laboratory, the DHL Analytical lab technician measured and recorded the temperature of the blank in order to verify proper sample preservation temperatures.

3.2 March 2014

On March 19, 2014 DBS&A conducted quarterly groundwater monitoring activities at the RWI Site. Figure 3b of this report presents a site map depicting the groundwater surface gradient and flow direction at the site as interpreted from data collected during the March 2014 groundwater monitoring event. Figure 4b of this report presents contaminant concentrations found during the March 2014 event and isoconcentration contours, if applicable. However, due to the extreme variability in analytical results, often several orders of magnitude between adjacent wells, it was not possible to determine isoconcentration lines for the entire site or for all the analytes.

Groundwater sample collection, quality assurance procedures and laboratory analyses were completed pursuant to the Rockwool Industries, Inc. Superfund Site Operations & Maintenance Plan (DBS&A, 2011); the January 17, 2014 Addendum No. 2 to the April 26, 2011 Rockwool Industries, Inc. Federal Superfund Site Field Sampling Plan (FSP2) for Operations & Maintenance Activities (DBS&A, January 2014); the applicable TCEQ Superfund Program SOPs; and the TCEQ Quality Assurance Project Plan for the Federal Superfund Program (Revision 10.0, Q-TRAK# 13-462) (TCEQ, 2013).

3.2.1 Groundwater Level Measurement

Prior to groundwater sample collection, each monitor well was visually inspected in order to verify the integrity of the protective casing and surface seal. In addition, the presence and condition of the security padlocks, hinged protective access covers, and monitor well plugs were verified. Depth-to-groundwater and total depth of selected monitoring wells were measured and recorded preceding the sampling of each well using a water level meter in accordance with TCEQ Superfund Program SOP No. 7.1 (Water Level/Sediment Measurement). Water level measurement data collected during this semi-annual groundwater monitoring event is located in Table 2 (Water Level Measurements and Groundwater Elevation Data) of this report. Calculated groundwater surface elevations are also presented in Table 2 of this report.

3.2.2 Groundwater Sampling Methods

A Horiba model U-52 Multi-Parameter Water Quality Meter was utilized for collecting groundwater quality measurements, including pH, DO, conductivity, temperature, and ORP in

the field. The water quality meter was calibrated each day according to the manufacturer specifications prior to the collection of groundwater quality measurements. Water quality measurements were collected prior to the collection of groundwater samples and in accordance with TCEQ Superfund Program SOP No. 7.5 (Measurement of Field Parameters).

In order to meet groundwater monitoring objectives, each monitor well was purged according to TCEQ Superfund Program SOP No. 7.4 (Micro Purging a Monitoring Well) prior to sampling and groundwater samples were collected from each monitor well in accordance with TCEQ Superfund Program SOP No. 7.8 (Groundwater Sampling Using a Low-flow Technique). Wells with insufficient water column for purging were sampled using factory-sealed bailers per instructions received from the TCEQ PM via a phone call on July 11, 2012 and in accordance with TCEQ SOP No. 7.2 (Purging a Monitoring Well with a Bailer) and TCEQ SOP No. 7.6 (Groundwater Sampling Using a Bailer).

Table 3.2 Well Sampling Method (March 2014)

Monitor Well ID	Sampling Method	
	Low-flow pump	Bailer
MW-7	X	
MW-9	X	
MW-10	X	
MW-11	X	
MW-14	X	
MW-15	DRY	DRY
MW-16	DRY	DRY
MW-17	X	
MW-18	X	
MW-19	X	
MW-20	X	
MW-21	X	
MW-22	X	
MW-24-90	X	
MW-27-90		X
MW-28-90		X
MW-29-90	X	
MW-30-90		X
MW-33-90	X	
MW-34-90	X	
MW-35-90	X	
MW-37-90	X	
MW-38-90	X	

Groundwater sample containers and chemical preservative, HNO_3, were provided by DHL Analytical. Unfiltered groundwater samples were collected from monitor wells containing sufficient water in accordance with the RWI Site FSP2 (DBS&A, January 2014) and the methodology described in the applicable TCEQ Superfund Program SOPs. Groundwater samples were submitted to DHL Analytical for inorganic metals (arsenic, antimony, and lead) analysis using EPA SW-846 Method 6020A.

3.2.3 Groundwater Sample Analysis

A completed chain-of-custody for 24 groundwater samples collected from the RWI Site on March 19, 2014 was submitted to DHL Analytical on March 20, 2014 for inorganic metals analysis by EPA SW-846 Method 6020A. DHL Analytical laboratory is recognized by the NELAP and certified by the TCEQ (Certificate No. T104704211-13-11).

Laboratory preparation of the aqueous samples for inorganic metals analysis by EPA SW-846 Method 6020A was performed by DHL Analytical following EPA SW-846 Method 3005A as referenced in EPA publication *SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.* Sample preparation by SW-846 Method 3005A is a laboratory acid digestion procedure used to prepare water samples for analysis by ICP-MS. The groundwater samples were analyzed by DHL Analytical using SW-846 Method 6020A, which involves ICP-MS to determine the concentration of multiple chemical elements, including the subject COCs for this project, in aqueous samples.

MS/MSD samples are spiked with known concentrations of the chemicals of concern prior to sample preparation and analysis at the laboratory and are used to evaluate the bias of the sample matrix. The MS/MSD samples were collected at predetermined sample locations suspected to be contaminated with low to medium levels of COCs, as outlined in the FSP, and submitted to DHL Analytical for chemical analysis.

3.2.4 Quality Assurance/Quality Control Samples

QA/QC samples were collected in the field and analyzed by DHL Analytical in order to serve as a check on sampling and analytical precision, accuracy, and representativeness. QA/QC samples were collected in accordance with TCEQ Superfund Program SOP No. 6.5 (Collection

of QA/QC Samples). Laboratory analytical results from the QA/QC samples collected during the March 2014 groundwater monitoring event are located in Table 1 (Summary of Groundwater Analytical Results) of this report. General descriptions of the QA/QC samples collected are presented in the sections below, while QA/QC analytical results are discussed in detail in Section 4 (Analytical Results) of this report.

3.2.4.1 Field Duplicate Samples

Field duplicate samples were collected at the same time and from the same source as the primary sample collection point and submitted as separate samples for confidentiality purposes to the laboratory for COC chemical analysis in order to evaluate sampling and analytical precision. The field duplicates were collected at a predetermined sample location known to be contaminated or suspected to be contaminated with COCs immediately after the primary environmental sample was collected. During the March 2014 groundwater monitoring event, field duplicates were collected from monitoring wells MW-35-90 (DUP-1) and MW-34-90 (DUP-2).

3.2.4.2 Equipment Rinsate Blank Samples

Equipment rinsate blank samples were collected during sampling activities in order to assess the effectiveness of equipment decontamination procedures. In accordance with FSP2, one equipment rinsate blank per equipment type per medium per day was collected when non-dedicated sampling equipment was used. One equipment rinsate blank was collected during the March 2014 sampling event. ER-1 was collected on March 19th.

3.2.4.3 Temperature Blank Samples

A temperature blank demonstrates that the environmental samples have been properly preserved at the required temperature (≤ 6℃) until receipt at the laboratory. A temperature blank for the March 2014 groundwater monitoring event was supplied by DHL Analytical as part of the sampling supply kit and was placed in the cooler with the samples prior to delivering the samples to the laboratory for analysis. Upon receipt at the laboratory, the DHL Analytical lab technician measured and recorded the temperature of the blank in order to verify proper sample preservation temperatures.

3.3 May 2014

On May 21, 2014 DBS&A conducted quarterly groundwater monitoring activities at the RWI Site. Figure 3c of this report presents a site map depicting the groundwater surface gradient and flow direction at the site as interpreted from data collected during the May 2014 groundwater monitoring event. Figure 4c of this report presents contaminant concentrations found during the May 2014 event and isoconcentration contours, if applicable. However, due to the extreme variability in analytical results, often several orders of magnitude between adjacent wells, it was not possible to determine isoconcentration lines for the entire site or for all the analytes.

Groundwater sample collection, quality assurance procedures and laboratory analyses were completed pursuant to the Rockwool Industries, Inc. Superfund Site Operations & Maintenance Plan (DBS&A, 2011); the January 17, 2014 Addendum No. 2 to the April 26, 2011 Rockwool Industries, Inc. Federal Superfund Site Field Sampling Plan (FSP2) for Operations & Maintenance Activities (DBS&A, January 2014); the applicable TCEQ Superfund Program SOPs; and the TCEQ Quality Assurance Project Plan for the Federal Superfund Program (Revision 10.0, Q-TRAK# 13-462) (TCEQ, 2013).

3.3.1 Groundwater Level Measurement

Prior to groundwater sample collection, each monitor well was visually inspected in order to verify the integrity of the protective casing and surface seal. In addition, the presence and condition of the security padlocks, hinged protective access covers, and monitor well plugs were verified. Depth-to-groundwater and total depth of selected monitoring wells were measured and recorded preceding the sampling of each well using a water level meter in accordance with TCEQ Superfund Program SOP No. 7.1 (Water Level/Sediment Measurement). Water level measurement data collected during this semi-annual groundwater monitoring event is located in Table 2 (Water Level Measurements and Groundwater Elevation Data) of this report. Calculated groundwater surface elevations are also presented in Table 2 of this report.

3.3.2 Groundwater Sampling Methods

A Horiba model U-52 Multi-Parameter Water Quality Meter was utilized for collecting groundwater quality measurements, including pH, DO, conductivity, temperature, and ORP in

the field. The water quality meter was calibrated each day according to the manufacturer specifications prior to the collection of groundwater quality measurements. Water quality measurements were collected prior to the collection of groundwater samples and in accordance with TCEQ Superfund Program SOP No. 7.5 (Measurement of Field Parameters).

In order to meet groundwater monitoring objectives, each monitor well was purged according to TCEQ Superfund Program SOP No. 7.4 (Micro Purging a Monitoring Well) prior to sampling and groundwater samples were collected from each monitor well in accordance with TCEQ Superfund Program SOP No. 7.8 (Groundwater Sampling Using a Low-flow Technique). Wells with insufficient water column for purging were sampled using factory-sealed bailers per instructions received from the TCEQ PM via a phone call on July 11, 2012.

Table 3.3 Well Sampling Method (May 2014)

Monitor Well ID	Sampling Method	
	Low-flow pump	Bailer
MW-7	X	
MW-9	X	
MW-10	X	
MW-11	X	
MW-14	X	
MW-15	DRY	DRY
MW-16	DRY	DRY
MW-17	X	
MW-18	X	
MW-19	X	
MW-20	X	
MW-21	X	
MW-22	X	
MW-24-90	X	
MW-27-90		X
MW-28-90	X	
MW-29-90	X	
MW-30-90		X
MW-33-90	X	
MW-34-90	X	
MW-35-90	X	
MW-37-90	X	
MW-38-90	X	

Groundwater sample containers and chemical preservative, HNO_3, were provided by DHL Analytical. Unfiltered groundwater samples were collected from monitor wells containing sufficient water in accordance with the RWI Site FSP2 (DBS&A, January 2014) and the methodology described in the applicable TCEQ Superfund Program SOPs. Groundwater samples were submitted to DHL Analytical for inorganic metals (arsenic, antimony, and lead) analysis using EPA SW-846 Method 6020A.

3.3.3 Groundwater Sample Analysis

A completed chain-of-custody for 24 groundwater samples collected from the RWI Site on May 21, 2014 was submitted to DHL Analytical on May 22, 2014 for inorganic metals analysis by EPA SW-846 Method 6020A and EPA SW-846 Method 7470A. One sample, which included the 7470A analysis, was an investigation derived waste (IDW) sample and is not reviewed in this report. DHL Analytical laboratory is recognized by the NELAP and certified by the TCEQ (Certificate No. T104704211-13-11).

Laboratory preparation of the aqueous samples for inorganic metals analysis by EPA SW-846 Method 6020A was performed by DHL Analytical following EPA SW-846 Method 3005A as referenced in EPA publication *SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.* Sample preparation by SW-846 Method 3005A is a laboratory acid digestion procedure used to prepare water samples for analysis by ICP-MS. The groundwater samples were analyzed by DHL Analytical using SW-846 Method 6020A, which involves ICP-MS to determine the concentration of multiple chemical elements, including the subject COCs for this project, in aqueous samples.

MS/MSD samples are spiked with known concentrations of the chemicals of concern prior to sample preparation and analysis at the laboratory and are used to evaluate the bias of the sample matrix. The MS/MSD samples were collected at predetermined sample locations suspected to be contaminated with low to medium levels of COCs, as outlined in the FSP, and submitted to DHL Analytical for chemical analysis.

3.3.4 Quality Assurance/Quality Control Samples

QA/QC samples were collected in the field and analyzed by DHL Analytical in order to serve as a check on sampling and analytical precision, accuracy, and representativeness. QA/QC samples were collected in accordance with TCEQ Superfund Program SOP No. 6.5 (Collection of QA/QC Samples). Laboratory analytical results from the QA/QC samples collected during the May 2014 groundwater monitoring event are located in Table 1 (Summary of Groundwater Analytical Results) of this report. General descriptions of the QA/QC samples collected are presented in the sections below, while QA/QC analytical results are discussed in detail in Section 4 (Analytical Results) of this report.

3.3.4.1 Field Duplicate Samples

Field duplicate samples were collected at the same time and from the same source as the primary sample collection point and submitted as separate samples for confidentiality purposes to the laboratory for COC chemical analysis in order to evaluate sampling and analytical precision. The field duplicates were collected at a predetermined sample location known to be contaminated or suspected to be contaminated with COCs immediately after the primary environmental sample was collected. During the May 2014 groundwater monitoring event, field duplicates were collected from monitoring wells MW-35-90 (DUP-1) and MW-34-90 (DUP-2).

3.3.4.2 Equipment Rinsate Blank Samples

Equipment rinsate blank samples were collected during sampling activities in order to assess the effectiveness of equipment decontamination procedures. In accordance with FSP2, one equipment rinsate blank per equipment type per medium per day was collected when non-dedicated sampling equipment was used. One equipment rinsate blank was collected during the May 2014 sampling event. ER-1 was collected on May 21st.

3.3.4.3 Temperature Blank Samples

A temperature blank demonstrates that the environmental samples have been properly preserved at the required temperature (≤ 6℃) until receipt at the laboratory. A temperature blank for the May 2014 groundwater monitoring event was supplied by DHL Analytical as part of

the sampling supply kit and was placed in the cooler with the samples prior to delivering the samples to the laboratory for analysis. Upon receipt at the laboratory, the DHL Analytical lab technician measured and recorded the temperature of the blank in order to verify proper sample preservation temperatures.

3.4 July 2014

On July 22, 2014 DBS&A conducted quarterly groundwater monitoring activities at the RWI Site. Figure 3d of this report presents a site map depicting the groundwater surface gradient and flow direction at the site as interpreted from data collected during the July 2014 groundwater monitoring event. Figure 4d of this report presents contaminant concentrations found during the July 2014 event and isoconcentration contours, if applicable. However, due to the extreme variability in analytical results, often several orders of magnitude between adjacent wells, it was not possible to determine isoconcentration lines for the entire site or for all the analytes.

Groundwater sample collection, quality assurance procedures and laboratory analyses were completed pursuant to the Rockwool Industries, Inc. Superfund Site Operations & Maintenance Plan (DBS&A, 2011); the January 17, 2014 Addendum No. 2 to the April 26, 2011 Rockwool Industries, Inc. Federal Superfund Site Field Sampling Plan (FSP2) for Operations & Maintenance Activities (DBS&A, January 2014); the applicable TCEQ Superfund Program SOPs; and the TCEQ Quality Assurance Project Plan for the Federal Superfund Program (Revision 10.0, Q-TRAK# 13-462) (TCEQ, 2013).

On July 23, 2014, an unknown monitoring well, locked and not labeled, was located on the eastern portion of the central property. Upon reviewing RWI Site historical documents, DBS&A was unable to identify the unknown well. A photograph of the unknown well is provided in the photographic log included in Appendix A.

3.4.1 Groundwater Level Measurement

Prior to groundwater sample collection, each monitor well was visually inspected in order to verify the integrity of the protective casing and surface seal. In addition, the presence and condition of the security padlocks, hinged protective access covers, and monitor well plugs were verified. Depth-to-groundwater and total depth of selected monitoring wells were measured and

recorded preceding the sampling of each well using a water level meter in accordance with TCEQ Superfund Program SOP No. 7.1 (Water Level/Sediment Measurement). Water level measurement data collected during this semi-annual groundwater monitoring event is located in Table 2 (Water Level Measurements and Groundwater Elevation Data) of this report. Calculated groundwater surface elevations are also presented in Table 2 of this report.

3.4.2 Groundwater Sampling Methods

A Horiba model U-52 Multi-Parameter Water Quality Meter was utilized for collecting groundwater quality measurements, including pH, DO, conductivity, temperature, and ORP in the field. The water quality meter was calibrated each day according to the manufacturer specifications prior to the collection of groundwater quality measurements. Water quality measurements were collected prior to the collection of groundwater samples and in accordance with TCEQ Superfund Program SOP No. 7.5 (Measurement of Field Parameters).

In order to meet groundwater monitoring objectives, each monitor well was purged according to TCEQ Superfund Program SOP No. 7.4 (Micro Purging a Monitoring Well) prior to sampling and groundwater samples were collected from each monitor well in accordance with TCEQ Superfund Program SOP No. 7.8 (Groundwater Sampling Using a Low-flow Technique). Wells with insufficient water column for purging were sampled using factory-sealed bailers per instructions received from the TCEQ PM via a phone call on July 11, 2012.

Table 3.4 Well Sampling Method (July 2014)

Monitor Well ID	Sampling Method	
	Low-flow pump	Bailer
MW-7	X	
MW-9	X	
MW-10	X	
MW-11		X
MW-14	X	
MW-15	DRY	DRY
MW-16	DRY	DRY
MW-17	X	
MW-18	X	
MW-19	X	
MW-20	X	
MW-21	X	
MW-22	X	
MW-24-90	X	
MW-27-90		X
MW-28-90	X	
MW-29-90	X	
MW-30-90		X
MW-33-90	X	
MW-34-90	X	
MW-35-90	X	
MW-37-90	X	
MW-38-90	X	

Groundwater sample containers and chemical preservative, HNO_3, were provided by DHL Analytical. Unfiltered groundwater samples were collected from monitor wells containing sufficient water in accordance with the RWI Site FSP2 (DBS&A, January 2014) and the methodology described in the applicable TCEQ Superfund Program SOPs. Groundwater samples were submitted to DHL Analytical for inorganic metals (arsenic, antimony, and lead) analysis using EPA SW-846 Method 6020A.

3.4.3 Groundwater Sample Analysis

A completed chain-of-custody for 24 groundwater samples collected from the RWI Site on July 22, 2014 was submitted to DHL Analytical on July 23, 2014 for inorganic metals analysis by EPA SW-846 Method 6020A and EPA SW-846 Method 7470A. DHL Analytical laboratory is recognized by the NELAP and certified by the TCEQ (Certificate No. T104704211-13-11).

Laboratory preparation of the aqueous samples for inorganic metals analysis by EPA SW-846 Method 6020A was performed by DHL Analytical following EPA SW-846 Method 3005A as referenced in EPA publication *SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.* Sample preparation by SW-846 Method 3005A is a laboratory acid digestion procedure used to prepare water samples for analysis by ICP-MS. The groundwater samples were analyzed by DHL Analytical using SW-846 Method 6020A, which involves ICP-MS to determine the concentration of multiple chemical elements, including the subject COCs for this project, in aqueous samples.

MS/MSD samples are spiked with known concentrations of the chemicals of concern prior to sample preparation and analysis at the laboratory and are used to evaluate the bias of the sample matrix. The MS/MSD samples were collected at predetermined sample locations suspected to be contaminated with low to medium levels of COCs, as outlined in the FSP, and submitted to DHL Analytical for chemical analysis.

3.4.4 Quality Assurance/Quality Control Samples

QA/QC samples were collected in the field and analyzed by DHL Analytical in order to serve as a check on sampling and analytical precision, accuracy, and representativeness. QA/QC samples were collected in accordance with TCEQ Superfund Program SOP No. 6.5 (Collection of QA/QC Samples). Laboratory analytical results from the QA/QC samples collected during the July 2014 groundwater monitoring event are located in Table 1 (Summary of Groundwater Analytical Results) of this report. General descriptions of the QA/QC samples collected are presented in the sections below, while QA/QC analytical results are discussed in detail in Section 4 (Analytical Results) of this report.

3.4.4.1 Field Duplicate Samples

Field duplicate samples were collected at the same time and from the same source as the primary sample collection point and submitted as separate samples for confidentiality purposes to the laboratory for COC chemical analysis in order to evaluate sampling and analytical precision. The field duplicates were collected at a predetermined sample location known to be contaminated or suspected to be contaminated with COCs immediately after the primary

environmental sample was collected. During the July 2014 groundwater monitoring event, field duplicates were collected from monitoring wells MW-35-90 (DUP-1) and MW-34-90 (DUP-2).

3.4.4.2 Equipment Rinsate Blank Samples

Equipment rinsate blank samples were collected during sampling activities in order to assess the effectiveness of equipment decontamination procedures. In accordance with FSP2, one equipment rinsate blank per equipment type per medium per day was collected when non-dedicated sampling equipment was used. One equipment rinsate blank was collected during the July 2014 sampling event. ER-1 was collected on July 22nd.

3.4.4.3 Temperature Blank Samples

A temperature blank demonstrates that the environmental samples have been properly preserved at the required temperature (≤ 6°C) until receipt at the laboratory. A temperature blank for the July 2014 groundwater monitoring event was supplied by DHL Analytical as part of the sampling supply kit and was placed in the cooler with the samples prior to delivering the samples to the laboratory for analysis. Upon receipt at the laboratory, the DHL Analytical lab technician measured and recorded the temperature of the blank in order to verify proper sample preservation temperatures.

3.5 Investigative Derived Waste

IDW, including purged groundwater fluids and decontamination wastewater recovered during the four quarterly groundwater monitoring activities, was managed according to TCEQ Superfund Program SOP No. 1.4. Purged groundwater and decontamination wastewater was stored on-site in chemically compatible 55-gallon steel drums. The first event of waste characterization and pickup was conducted in April after the second groundwater monitoring event. The second pickup for one IDW drum was conducted on August 21, 2014. Other waste generated during the O&M activities, including contaminated personal protective equipment (PPE) and disposable sampling equipment, was placed in plastic bags after use and disposed of as non-hazardous solid waste.

4. Groundwater Analysis

Discussion of the laboratory analytical results for the quarterly groundwater monitoring events at the RWI Site is presented in the following sections. Analytical data is provided in Table 1 (Summary of Groundwater Analytical Results) of this report. Complete laboratory analytical data reports, including the data review and data validation memoranda, are located in Appendix 2 of this report.

4.1 January 2014

4.1.1 Groundwater Analytical Results

Analytical results from groundwater samples collected from selected groundwater monitoring wells were compared to the human health PRGs for the COCs in order to ensure the continued protectiveness of the selected remedy and to determine the level of contamination in groundwater. The concentrations of the PRGs for the COCs in groundwater, as defined in FSP2 are 6 µg/L for antimony, 10 µg/L for arsenic, and 5 µg/L for lead (DBS&A, January 2014).

Table 4.1 (Summary of PRG Exceedances - January 2014) below presents the analytical data results for groundwater samples collected from the RWI Site monitor wells sampled in January 2014 that were found to have concentrations above the PRGs for one or more of the COCs. Several of the groundwater samples collected from the monitor wells demonstrated concentrations of both antimony and arsenic above their respective PRGs. The maximum concentration for January 2014 of antimony was reported at 0.802 milligrams per liter (mg/L) found in MW-38-90; the maximum concentration of arsenic was reported at 0.415 mg/L found in MW-34-90; there were no wells found to contain lead in amounts above the PRG during the January 2014 sampling event.

Table 4.1 - Summary of PRG Exceedances - January 2014

Sample ID	Lab Sample ID	Sample Date	Antimony (mg/L)	Arsenic (mg/L)	Lead (mg/L)
MW-9	1401180-24	1/23/2014	**0.250**	**0.122**	<0.000300
MW-17	1401180-20	1/23/2014	**0.0256**	0.00472	<0.000300
MW-21	1401180-04	1/21/2014	**0.336**	<0.00200	0.000335 J
MW-24-90	1401180-15	1/22/2014	**0.0128**	**0.0124**	0.001320
MW-27-90	1401180-19	1/23/2014	**0.0554**	0.00219 J	0.000746 J
MW-28-90	1401180-21	1/23/2014	**0.0412**	**0.125**	0.000501 J
MW-29-90	1401180-17	1/22/2014	**0.0169**	0.00441 J	0.00159
MW-33-90	1401180-22	1/23/2014	**0.132**	**0.0321**	0.000768 J
MW-34-90	1401180-23	1/23/2014	**0.306**	**0.415**	<0.000300
DUP-2 (MW-34-90)	1401180-26	1/23/2014	**0.300**	**0.410**	<0.000300
MW-35-90	1401180-06	1/21/2014	**0.604**	**0.0803**	0.000511 J
DUP-1 (MW-35-90)	1401180-07	1/21/2014	**0.594**	**0.0809**	0.000764 J
MW-37-90	1401180-03	1/21/2014	0.00121 J	**0.0437**	<0.000300
MW-38-90	1401180-05	1/21/2014	**0.802**	0.00412 J	<0.000300
Preliminary Remediation Goals (mg/L)			**0.006**	**0.010**	**0.005**

** Values in **bold** indicate results above Preliminary Remediation Goals (PRGs)*

4.1.2 Quality Assurance/Quality Control Sample Results

Laboratory analytical results of the QA/QC samples collected during the January 2014 groundwater monitoring event are located in Table 1 (Summary of Groundwater Analytical Results) of this report. Complete laboratory analytical data reports, including QA/QC data results and the data review and data validation memoranda are located in Appendix 2 of this report.

4.1.3 Field Duplicate Samples

Field duplicates were collected from monitoring wells MW-35-90 and MW-34-90 during the January 2014 groundwater monitoring event and respectively labeled as DUP-1 and DUP-2 for confidentiality purposes. The calculated relative percent differences (RPD) between the MW-35-90 primary sample and the field duplicate (DUP-1) are 1.67% for antimony, 0.74% for arsenic, and 39.69% for lead. The calculated RPD between the MW-34-90 primary sample and the field duplicate (DUP-2) are 1.98% for antimony and 1.21% for arsenic. Lead was not detected above the sample detection limit (SDL) in either the MW-34-90 primary sample or the field duplicate

(DUP-2). The above calculated RPD values for lead for MW-35-90 and DUP-1 was greater than the 30% criterion established in the TCEQ Quality Assurance Project Plan for the Federal Superfund Program (Revision 10.0, Q-TRAK# 13-462) (TCEQ, 2013); therefore, these results have been qualified as "estimated". Each of the calculated RPD values for MW-34-90 and DUP-2 were less than the 30% criterion; therefore, no qualification is required for those results.

4.1.4 Equipment Rinsate Blank Samples

Three equipment rinsate blank samples (ER-1, ER-2, and ER-3) were collected during the January 2014 sampling event. Analytical results for the equipment rinsate blank samples indicate that none of the COCs were identified in any of the blank samples above the sample detection limits. Therefore, the equipment decontamination procedures performed during this groundwater monitoring event are deemed effective.

4.1.5 Temperature Blank Samples

The temperature of the collected groundwater samples was reported by DHL Analytical to be 1.0°C upon receipt by the laboratory, which is within the allowable temperature range of 0-6°C. Therefore, the environmental samples were properly preserved at the required temperature until receipt at the laboratory.

4.1.6 Data Review & Validation

The independent data usability review for the January 2014 groundwater monitoring analytical data package was completed as specified in TCEQ Federal Superfund QAPP Element D.2.1.2. Additionally, data validation was performed as specified in TCEQ Federal Superfund QAPP Element D.2.1.3. The data review and data validation memoranda prepared pursuant to the contract requirements are located in Appendix 2 of this report. The technical data review and validation resulted in no significant quality control anomalies, no rejected data, nor any corrective actions taken or recommended for future analyses. The data as a whole is found to be usable for meeting the project objectives with the qualifications presented in the Data Usability Summary (DUS) located in Appendix 2.

4.2 March 2014

4.2.1 Groundwater Analytical Results

Analytical results from groundwater samples collected from the selected groundwater monitoring wells were compared to the human health PRGs for the COCs in order to ensure the continued protectiveness of the selected remedy and to determine the level of contamination in groundwater. The concentrations of the PRGs for the COCs in groundwater, as defined in FSP2 are 6 µg/L for antimony, 10 µg/L for arsenic, and 5 µg/L for lead (DBS&A, January 2014).

Table 4.2 (Summary of PRG Exceedances - March 2014) below presents the analytical data results for groundwater samples collected from the RWI Site monitor wells sampled in March 2014 that were found to have concentrations above the PRGs for one or more of the COCs. Several of the groundwater samples collected from the monitor wells demonstrated concentrations of both antimony and arsenic above their respective PRGs. The maximum concentration for March 2014 of antimony was reported at 0.550 mg/L found in MW-38-90; the maximum concentration of arsenic was reported at 0.463 mg/L found in DUP-2 (MW-34-90 duplicate); there were no wells found to contain lead in non-qualified amounts above the PRG during the March 2014 sampling event.

Table 4.2 - Summary of PRG Exceedances - March 2014

Sample ID	Lab Sample ID	Sample Date	Antimony (mg/L)	Arsenic (mg/L)	Lead (mg/L)
MW-9	1403158-10	3/19/2014	**0.245**	**0.0889**	<0.000300
MW-17	1403158-20	3/19/2014	**0.049**	**0.0149**	<0.000300
MW-21	1403158-17	3/19/2014	**0.211**	<0.00200	0.000322 J
MW-24-90	1403158-06	3/19/2014	**0.0128**	**0.0119**	0.000962 J
MW-27-90	1403158-08	3/19/2014	**0.0562**	0.00210 J	0.00176
MW-28-90	1403158-09	3/19/2014	0.00586	**0.0168**	0.00112
MW-29-90	1403158-19	3/19/2014	**0.0254**	0.00514	0.00359
MW-33-90	1403158-21	3/19/2014	**0.131**	**0.0387**	<0.000300
MW-34-90	1403158-22	3/19/2014	**0.305**	**0.447**	0.000894 J
DUP-2 (MW-34-90)	1403158-24	3/19/2014	**0.316**	**0.463**	0.00114
MW-35-90	1403158-15	3/19/2014	**0.166**	**0.0558**	**0.0479** JI-FD
DUP-1 (MW-35-90)	1403158-23	3/19/2014	**0.149**	**0.0446**	**0.0268** JI-FD
MW-37-90	1403158-13	3/19/2014	0.000951 J	**0.0213**	<0.000300
MW-38-90	1403158-14	3/19/2014	**0.550**	0.00258 J	<0.000300
Preliminary Remediation Goals (mg/L)			**0.006**	**0.010**	**0.005**

** Values in **bold** indicate results above Preliminary Remediation Goals (PRGs)*

4.2.2 Quality Assurance/Quality Control Sample Results

Laboratory analytical results of the QA/QC samples collected during the March 2014 groundwater monitoring event are located in Table 1 (Summary of Groundwater Analytical Results) of this report. Complete laboratory analytical data reports, including QA/QC data results and the data review and data validation memoranda are located in Appendix 2 of this report.

4.2.3 Field Duplicate Samples

Field duplicates were collected from monitoring wells MW-35-90 and MW-34-90 during the March 2014 groundwater monitoring event and respectively labeled as DUP-1 and DUP-2 for confidentiality purposes. The calculated RPD between the MW-35-90 primary sample and the field duplicate (DUP-1) are 10.79% for antimony, 22.31% for arsenic, and 56.49% for lead. The calculated RPD between the MW-34-90 primary sample and the field duplicate (DUP-2) are 3.54% for antimony, 3.52% for arsenic, and 24.19% for lead. The above calculated RPD values for lead for MW-35-90 and DUP-1 were greater than the 30% criterion established in the TCEQ

Quality Assurance Project Plan for the Federal Superfund Program (Revision 10.0, Q-TRAK# 13-462) (TCEQ, 2013); therefore, these results have been qualified as "estimated". Each of the calculated RPD values for MW-34-90 and DUP-2 were less than the 30% criterion; therefore, no qualification is required for those results.

4.2.4 Equipment Rinsate Blank Samples

One equipment rinsate blank sample (ER-1) was collected during the March 2014 sampling event. Analytical results for the equipment rinsate blank sample indicate that none of the COCs were identified in the blank sample above the sample detection limits. Therefore, the equipment decontamination procedures performed during this groundwater monitoring event are deemed effective.

4.2.5 Temperature Blank Samples

The temperature of the collected groundwater samples was reported by DHL Analytical to be 1.4°C and 0.8°C (two coolers) upon receipt by the laboratory, which is within the allowable temperature range of 0-6°C. Therefore, the environmental samples were properly preserved at the required temperature until receipt at the laboratory.

4.2.6 Data Review

The independent data usability review for the March 2014 groundwater monitoring analytical data package was completed as specified in TCEQ Federal Superfund QAPP Element D.2.1.2. The data review memorandum prepared pursuant to the contract requirements is located in Appendix 2 of this report. The technical data review resulted in no significant quality control anomalies, no rejected data, nor any corrective actions taken or recommended for future analyses. The data reviewer did identify that samples 1403158-15/23 (MW-35-90/DUP-1) did not meet the field duplicate review criteria for lead. However, none of the interpretations were impacted by the field duplicate results and the data as a whole is found to be usable for meeting the project objectives with the qualifications presented in the DUS located in Appendix 2.

4.3 May 2014

4.3.1 Groundwater Analytical Results

Analytical results from groundwater samples collected from selected groundwater monitoring wells were compared to the human health PRGs for the COCs in order to ensure the continued protectiveness of the selected remedy and to determine the level of contamination in groundwater. The concentrations of the PRGs for the COCs in groundwater, as defined in FSP2 are 6 µg/L for antimony, 10 µg/L for arsenic, and 5 µg/L for lead (DBS&A, January 2014).

Table 4.3 (Summary of PRG Exceedances - May 2014) below presents the analytical data results for groundwater samples collected from the RWI Site monitor wells sampled in May 2014 that were found to have concentrations above the PRGs for one or more of the COCs. Several of the groundwater samples collected from the monitor wells demonstrated concentrations of both antimony and arsenic above their respective PRGs. The maximum concentration for May 2014 of antimony was reported at 2.21 mg/L found in MW-38-90; the maximum concentration of arsenic was reported at 0.383 mg/L found in MW-34-90. There were no lead results above the PRG of 0.005 mg/L found during the May 2014 sampling event.

Table 4.3 - Summary of PRG Exceedances - May 2014

Sample ID	Lab Sample ID	Sample Date	Antimony (mg/L)	Arsenic (mg/L)	Lead (mg/L)
MW-9	1405261-24	5/21/2014	**0.237**	**0.0951**	<0.000300
MW-17	1405261-09	5/21/2014	**0.0427**	0.00889	<0.000300
MW-21	1405261-03	5/21/2014	**0.309**	0.00596	<0.000300
MW-24-90	1405261-20	5/21/2014	**0.0171**	**0.0122**	0.000779 J
MW-27-90	1405261-22	5/21/2014	**0.0554**	0.00302 J	0.00194
MW-28-90	1405261-23	5/21/2014	**0.0399**	**0.106**	<0.000300
MW-29-90	1405261-08	5/21/2014	**0.0217**	0.00275 J	0.00123
MW-33-90	1405261-10	5/21/2014	**0.126**	**0.0296**	<0.000300
MW-34-90	1405261-11	5/21/2014	**0.324**	**0.383**	<0.000300
DUP-2 (MW-34-90)	1405261-13	5/21/2014	**0.329**	**0.377**	<0.000300
MW-35-90	1405261-05	5/21/2014	**0.985**	**0.0943**	0.000506 J
DUP-1 (MW-35-90)	1405261-12	5/21/2014	**0.985**	**0.0922**	0.000525 J
MW-38-90	1405261-04	5/21/2014	**2.21**	0.00599	<0.000300
Preliminary Remediation Goals (mg/L)			**0.006**	**0.010**	**0.005**

** Values in **bold** indicate results above Preliminary Remediation Goals (PRGs)*

4.3.2 Quality Assurance/Quality Control Sample Results

Laboratory analytical results of the QA/QC samples collected during the May 2014 groundwater monitoring event are located in Table 1 (Summary of Groundwater Analytical Results) of this report. Complete laboratory analytical data reports, including QA/QC data results and the data review and data validation memoranda are located in Appendix 2 of this report.

4.3.3 Field Duplicate Samples

Field duplicates were collected from monitoring wells MW-35-90 and MW-34-90 during the May 2014 groundwater monitoring event and respectively labeled as DUP-1 and DUP-2 for confidentiality purposes. The calculated RPD between the MW-35-90 primary sample and the field duplicate (DUP-1) are 0.00% for antimony, 2.25% for arsenic, and 3.69% for lead. The calculated RPD between the MW-34-90 primary sample and the field duplicate (DUP-2) are 1.53% for antimony and 1.58% for arsenic. Lead was not detected above the SDL in either the MW-34-90 primary sample or the field duplicate (DUP-2). All of the calculated RPD values for the between the respective primary and duplicate samples were below the 30% criterion established in the TCEQ Quality Assurance Project Plan for the Federal Superfund Program

(Revision 10.0, Q-TRAK# 13-462) (TCEQ, 2013); therefore, no qualification is required for these results.

4.3.4 Equipment Rinsate Blank Samples

One equipment rinsate blank sample (ER-1) was collected during the May 2014 sampling event. Analytical results for the equipment rinsate blank sample indicate that antimony was identified in the blank sample at a concentration of 0.000875 mg/L. If a metal is detected in a blank and also detected in an associated sample in a concentration less than 5 times the concentration found in the blank, the sample data are qualified as "not detected" for that compound and flagged as U-RB. Qualified samples are MW-7, MW-18, MW-19, MW-20, MW-22, MW-30-90, and MW-37-90. However, none of the interpretations were impacted by the rinsate blank results and the data as a whole is found to be usable for meeting the project objectives with the qualifications presented in the DUS located in Appendix 2.

4.3.5 Temperature Blank Samples

The temperature of the collected groundwater samples was reported by DHL Analytical to be 0.8°C and 1.2°C (two coolers) upon receipt by the laboratory, which is within the allowable temperature range of 0-6°C. Therefore, the environmental samples were properly preserved at the required temperature until receipt at the laboratory.

4.3.6 Data Review

The independent data usability review for the May 2014 groundwater monitoring analytical data package was completed as specified in TCEQ Federal Superfund QAPP Element D.2.1.2. The data review memorandum prepared pursuant to the contract requirements is located in Appendix 2 of this report. The technical data review resulted in no significant quality control anomalies, no rejected data, nor any corrective actions taken or recommended for future analyses. The data as a whole is found to be usable for meeting the project objectives with the qualifications presented in the DUS located in Appendix 2.

4.4 July 2014

4.4.1 Groundwater Analytical Results

Analytical results from groundwater samples collected from the selected groundwater monitoring wells were compared to the human health PRGs for the COCs in order to ensure the continued protectiveness of the selected remedy and to determine the level of contamination in groundwater. The concentrations of the PRGs for the COCs in groundwater, as defined in FSP2 are 6 µg/L for antimony, 10 µg/L for arsenic, and 5 µg/L for lead (DBS&A, January 2014).

Table 4.4 (Summary of PRG Exceedances - July 2014) below presents the analytical data results for groundwater samples collected from the RWI Site monitor wells sampled in July 2014 that were found to have concentrations above the PRGs for one or more of the COCs. Several of the groundwater samples collected from the monitor wells demonstrated concentrations of both antimony and arsenic above their respective PRGs. The maximum concentration for July 2014 of antimony was reported at 0.524 mg/L found in MW-35-90; the maximum concentration of arsenic was reported at 0.433 mg/L found in MW-34-90; the maximum concentration of lead was reported at 0.009 mg/L found in MW-11 and was the only result that exceeded the PRG for lead.

Table 4.4 - Summary of PRG Exceedances - July 2014

Sample ID	Lab Sample ID	Sample Date	Antimony (mg/L)	Arsenic (mg/L)	Lead (mg/L)
MW-9	1407278-24	7/22/2014	**0.240**	**0.0997**	<0.000300
MW-11	1407278-16	7/22/2014	0.00168 J	0.00581	**0.009**
MW-17	1407278-09	7/22/2014	**0.0354**	**0.0137**	<0.000300
MW-21	1407278-03	7/22/2014	**0.218**	0.00778	0.00161 JI-DL
MW-24-90	1407278-20	7/22/2014	**0.0673**	**0.0484**	0.00479
MW-27-90	1407278-22	7/22/2014	**0.0516**	0.00224 J	0.00498
MW-28-90	1407278-23	7/22/2014	**0.0405**	**0.104**	0.00054
MW-29-90	1407278-08	7/22/2014	**0.0274**	0.00763	0.00235 JI-DL
MW-33-90	1407278-10	7/22/2014	**0.140**	**0.026**	<0.000300
MW-34-90	1407278-11	7/22/2014	**0.314**	**0.433**	<0.000300
DUP-2 (MW-34-90)	1407278-13	7/22/2014	**0.318**	**0.424**	<0.000300
MW-35-90	1407278-05	7/22/2014	**0.524**	**0.0826**	0.00157 JI-DL
DUP-1 (MW-35-90)	1407278-12	7/22/2014	**0.516**	**0.0835**	0.00169 JI-DL
MW-38-90	1407278-04	7/22/2014	**0.303**	0.00737	0.000703 JI-DL
Preliminary Remediation Goals (mg/L)			**0.006**	**0.010**	**0.005**

** Values in **bold** indicate results above Preliminary Remediation Goals (PRGs)*

4.4.2 Quality Assurance/Quality Control Sample Results

Laboratory analytical results of the QA/QC samples collected during the July 2014 groundwater monitoring event are located in Table 1 (Summary of Groundwater Analytical Results) of this report. Complete laboratory analytical data reports, including QA/QC data results and the data review and data validation memoranda are located in Appendix 2 of this report.

4.4.3 Field Duplicate Samples

Field duplicates were collected from monitoring wells MW-35-90 and MW-34-90 during the July 2014 groundwater monitoring event and respectively labeled as DUP-1 and DUP-2 for confidentiality purposes. The calculated RPD between the MW-35-90 primary sample and the field duplicate (DUP-1) are 1.54% for antimony, 1.08% for arsenic, and 7.36% for lead. The calculated RPD between the MW-34-90 primary sample and the field duplicate (DUP-2) are 1.27% for antimony and 2.10% for arsenic. Lead was not detected above the SDL in either the MW-34-90 primary sample or the field duplicate (DUP-2). All of the calculated RPD values for the between the respective primary and duplicate samples were below the 30% criterion

established in the TCEQ Quality Assurance Project Plan for the Federal Superfund Program (Revision 10.0, Q-TRAK# 13-462) (TCEQ, 2013); therefore, no qualification is required for these results.

4.4.4 Equipment Rinsate Blank Samples

One equipment rinsate blank sample (ER-1) was collected during the July 2014 sampling event. Analytical results for the equipment rinsate blank sample indicate that none of the COCs were identified in the blank sample above the sample detection limits. Therefore, the equipment decontamination procedures performed during this groundwater monitoring event are deemed effective.

4.4.5 Temperature Blank Samples

The temperature of the collected groundwater samples was reported by DHL Analytical to be 2.7°C and 3.6°C (two coolers) upon receipt by the laboratory, which is within the allowable temperature range of 0-6°C. Therefore, the environmental samples were properly preserved at the required temperature until receipt at the laboratory.

4.4.6 Data Review

The independent data usability review for the July 2014 groundwater monitoring analytical data package was completed as specified in TCEQ Federal Superfund QAPP Element D.2.1.2. The data review memorandum prepared pursuant to the contract requirements is located in Appendix 2 of this report. The technical data review resulted in no significant quality control anomalies, no rejected data, nor any corrective actions taken or recommended for future analyses. The data as a whole is found to be usable for meeting the project objectives with the qualifications presented in the DUS located in Appendix 2.

5. Discussion of Findings and Conclusions

O&M activities were performed at the RWI Federal Superfund Site in order to ensure that the selected remedy remains protective of human health and the environment. Inspection and

maintenance activities at the RWI Site of the MATCON, are covered under a separate work order will be reported under separate cover.

The primary objective of the groundwater monitoring program is to compare the analytical results from groundwater sample analysis to the human health PRGs for the contaminants of concern in order to evaluate the continued protectiveness of the selected remedy and to determine the level of contamination in groundwater.

Results from the groundwater monitoring events appear to indicate that the contaminants of concern, especially antimony and arsenic, continue to impact groundwater above the established PRGs as a result of contaminant leaching and migration from the subsurface soil and waste located across the RWI site. Specifically, antimony and arsenic appear to be the dominant COCs in groundwater beneath the site with lead being a minor COC. There appear to be two areas where COCs are concentrated: On the North Property in the area of the former Evaporation Lagoon (EVL) and on the southwest portion of the Central Property near the fence along FM93 and south of the MATCON in the area of MW-34-90 and MW-9. Wells north and west of the MATCON have elevated levels of antimony and arsenic as well.

Twenty groundwater monitoring wells have been gauged during each of the last four sampling events (January 2014, March 2014, May 2014, and July 2014) yielding useful groundwater elevation data. Sixteen of those wells have remained fairly constant, two exhibit an increasing trend in groundwater elevation, one exhibits a decreasing trend, and one had an anomalously high reading in the third quarter with an overall increasing trend. These trends generally hold true when previous gauging events are factored in as well with a few wells showing long-term trends of increasing groundwater elevation. Gradient maps constructed for the last four quarters indicate that a groundwater divide exists at the Site running NE-SW through the middle of the Site. Groundwater appears to flow away from this site in all directions, with the exception of the southwest portion of the Central Property where groundwater appears to flow towards the Site. It should be noted, however, that Texas has been under drought conditions since approximately October 2010, which is before DBS&A began work at the Site. Thus, groundwater data since that time only reflects data collected during a time of drought and not otherwise normal seasonal rainfall conditions.

COCs, specifically antimony and arsenic, have been elevated in the area of the former EVL and in the areas south, west, and north of the MATCON since DBS&A's initial groundwater sampling event in May 2011. Based on gradient maps constructed from data obtained during the last four quarters of site work, groundwater in the area of the former EVL is flowing towards, and likely into, the Leon River. Groundwater on the Central Property in the area of the MATCON appears to flow north/north-northwest away from the MATCON, but also in towards the MATCON from the south, east, and west. This flow regime explains the increased levels of COCs in the wells to the north of the MATCON, but not the increased levels of COCs found along the southwest property boundary. Note, however, that the current groundwater flow pattern is likely affected by the persistent drought conditions and may have been different in the past allowing for contaminant flow away from the MATCON.

On July 23, 2014, an unknown monitoring well, locked and not labeled, was located on the eastern portion of the central property. Upon reviewing RWI Site historical documents, DBS&A was unable to identify the unknown well. A photograph of the unknown well is provided in the photographic log included in Appendix A.

6. Recommendations

Based on the results obtained from the 2014 O&M activities described in this report, DBS&A recommends continued groundwater monitoring on a semi-annual basis to continue trending of chemical concentrations and evaluate site conditions. COC concentration trends suggest that the former EVL and MATCON may be a continuing source of COCs and further evaluation of the effectiveness of the remedies selected for those areas is recommended.

During the January 2014 sampling event, six monitoring wells were observed to have issues that may lead to compromised analytical data, well security, or groundwater gradient calculations. The following table summarizes the affected wells and associated issues.

Monitor Well Issues - January 2014 Sampling Event

Well ID	Issue
MW-9	Subsidence under well pad and bent well casing.
MW-10	Subsidence under well pad.
MW-17	Subsidence under well pad and bent well casing.
MW-18	Well cover broken and cannot be locked.
MW-24-90	Damaged well pad and bent casing.
MW-33-90	Subsidence under well pad and bent well casing.

DBS&A recommends the condition and integrity of Site groundwater monitoring wells be further assessed for repairs and/or reconstruction to achieve compliance.

DBS&A recommends the following wells be evaluated for plugging and abandonment (P&A): MW-10, MW-15, and MW-16. The rationale matrix below lists each well and DBS&A's reasoning for recommending P&A.

Well P&A Rationale Matrix

Well ID	Rationale
MW-10	Trend of non-detect antimony, very low levels of arsenic, and non-detect levels of lead since May 2011.
MW-15	Well is obstructed and cannot be sampled.
MW-16	Well has been dry during each sampling event conducted by DBS&A since May 2011.

As documented in Table 2 and based on fluctuations of total depth measurements since 2011, it appears that the majority of wells sampled in FY14 indicate signs of silt accumulation within the well casing; therefore, DBS&A recommends the Site groundwater monitoring wells be further evaluated and redeveloped as necessary.

DBS&A recommends to further investigate the unknown monitoring well located on the eastern portion of the central property.

In order to obtain groundwater elevation data, DBS&A recommends to survey the top-of-casing elevation for monitoring well MW-18.

The site is a federal superfund site, which is in the O&M phase, under the management of the state. Since the selected remedies resulted in hazardous substances remaining onsite above levels that do not allow for unlimited use and unrestricted exposure, a statutory review must be conducted within five years of the initiation of Remedial Action to ensure the remedy is, and will be, protective of human health and the environment. After several quarterly groundwater sampling events since 2011 and 2012, the COCs do not appear to be decreasing and consistently exceed their respective MCLs for antimony and arsenic in approximately 12 and 7 monitor wells, respectively. Therefore, DBS&A suggests further and more focused investigations be conducted at the site to evaluate the effectiveness of the remedy, specific to the former Evaporation Lagoon area, and the protectiveness/adequacy of the soil cover over the shot material left in-place.

7. References

Daniel B. Stephens & Associates, Inc. February 2011. *Operations & Maintenance Plan*. Rockwool Industries, Inc. Superfund Site, Bell County, Texas.

Daniel B. Stephens & Associates, Inc. January 2014. *Addendum No. 2 to the April 26, 2011 Field Sampling Plan for Operations & Maintenance Activities*. Rockwool Industries, Inc. Superfund Site, Bell County, Texas.

Texas Commission on Environmental Quality (TCEQ) Remediation Division. 2013. *Quality Assurance Project Plan for the Federal Superfund Program* Revision 10.0, Q-TRAK# 13-462.

U.S. Environmental Protection Agency (EPA). September 2004. *Superfund Record of Decision (ROD).* Rockwool Industries, Inc., Bell County, Texas.

Wilder Construction Company (Wilder). January 2006. *MatCon® Operation and Maintenance Plan for Rockwool Superfund Site, MatCon® Impermeable Asphalt Cap*. Wilder Construction Company, Everett, Washington.

Tables

Table 1. Summary of Groundwater Analytical Results
Rockwool Industries, Inc. Federal Superfund Site
1741 Taylors Valley Road, Belton, Bell County, Texas

Sample ID	Lab Sample ID	Sample Date	Antimony (mg/L)	SDL (mg/L)	MQL (mg/L)	Arsenic (mg/L)	SDL (mg/L)	MQL (mg/L)	Lead (mg/L)	SDL (mg/L)	MQL (mg/L)
PRGs (mg/L)			**0.006**			**0.010**			**0.005**		
MW-7	1105024-09	5/4/2011	0.00208 J	0.0008	0.0025	<0.00200	0.002	0.005	0.000972 J	0.0003	0.001
	1207088-01	7/10/2012	0.00153 J	0.0008	0.0025	<0.00200	0.002	0.005	0.00069 J	0.0003	0.001
	1212276-01	12/27/2012	0.00142 J	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1303040-01	3/5/2013	0.00128 J	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1306108-01	6/10/2013	0.00143 J	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1401180-12	1/22/2014	0.00116 J	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1403158-04	3/19/2014	0.00152 J	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1405261-18	5/21/2014	0.00133 U-RB	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1407278-18	7/22/2014	0.00218 J	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
MW-9	1105024-10	5/4/2011	**0.266**	0.0008	0.0025	**0.0911**	0.002	0.005	0.000715 J	0.0003	0.001
	1207088-02	7/10/2012	**0.249**	0.0008	0.0025	**0.081**	0.002	0.005	<0.000300	0.0003	0.001
	1212276-02	12/26/2012	**0.236**	0.0008	0.0025	**0.0807**	0.002	0.005	<0.000300	0.0003	0.001
	1303040-02	3/5/2013	**0.212**	0.0008	0.0025	**0.0731**	0.002	0.005	<0.000300	0.0003	0.001
	1306108-02	6/11/2013	**0.256**	0.0008	0.0025	**0.0982**	0.002	0.005	<0.000300	0.0003	0.001
	1401180-24	1/23/2014	**0.250**	0.0008	0.0025	**0.122**	0.002	0.005	<0.000300	0.0003	0.001
	1403158-10	3/19/2014	**0.245**	0.0008	0.0025	**0.0899**	0.002	0.005	<0.000300	0.0003	0.001
	1405261-24	5/21/2014	**0.237**	0.0008	0.0025	**0.0951**	0.002	0.005	<0.000300	0.0003	0.001
	1407278-24	7/22/2014	**0.240**	0.0008	0.0025	**0.0997**	0.002	0.005	<0.000300	0.0003	0.001
MW-10	1105024-11	5/4/2011	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	0.000351 J	0.0003	0.001
	1207088-03	7/10/2012	<0.000800	0.0008	0.0025	0.00302 J	0.002	0.005	<0.000300	0.0003	0.001
	1212276-03	12/26/2012	<0.000800	0.0008	0.0025	0.00244 J	0.002	0.005	<0.000300	0.0003	0.001
	1303040-03	3/5/2013	<0.000800	0.0008	0.0025	0.00296 J	0.002	0.005	<0.000300	0.0003	0.001
	1306108-03	6/10/2013	<0.000800	0.0008	0.0025	0.00363 J	0.002	0.005	<0.000300	0.0003	0.001
	1401180-11	1/22/2014	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1403158-16	3/19/2014	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1405261-06	5/21/2014	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001

Table 1. Summary of Groundwater Analytical Results
Rockwool Industries, Inc. Federal Superfund Site
1741 Taylors Valley Road, Belton, Bell County, Texas

Sample ID	Lab Sample ID	Sample Date	Antimony (mg/L)	SDL (mg/L)	MQL (mg/L)	Arsenic (mg/L)	SDL (mg/L)	MQL (mg/L)	Lead (mg/L)	SDL (mg/L)	MQL (mg/L)
PRGs (mg/L)			**0.006**			**0.010**			**0.005**		
MW-10 Cont.	1407278-06	7/22/2014	0.000924 J	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
MW-11	1105024-12	5/3/2011	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	0.00364	0.0003	0.001
	1207088-04	7/10/2012	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1212276-04	12/26/2012	<0.000800	0.0008	0.0025	0.00311 J	0.002	0.005	<0.000300	0.0003	0.001
	1303040-04	3/5/2013	<0.000800	0.0008	0.0025	0.00353 J	0.002	0.005	<0.000300	0.0003	0.001
	1306108-04	6/10/2013	<0.000800	0.0008	0.0025	0.0026 J	0.002	0.005	<0.000300	0.0003	0.001
	1401180-09	1/22/2014	<0.000800	0.0008	0.0025	0.00228 J	0.002	0.005	0.00362	0.0003	0.001
	1403158-02	3/19/2014	<0.000800	0.0008	0.0020	<0.00200	0.002	0.005	0.000372 J	0.0003	0.001
	1405261-16	5/21/2014	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1407278-16	7/22/2014	0.00168 J	0.0008	0.0025	0.00581	0.002	0.005	**0.009**	0.0003	0.001
MW-14	1212276-05	12/26/2012	<0.000800	0.0008	0.0025	0.00209 J	0.002	0.005	0.000376 J	0.0003	0.001
	1303040-05	3/5/2013	<0.000800	0.0008	0.0025	0.00214 J	0.002	0.005	<0.000300	0.0003	0.001
	1306108-05	6/10/2013	<0.000800	0.0008	0.0025	0.00216 J	0.002	0.005	<0.000300	0.0003	0.001
	1401180-10	1/22/2014	<0.000800	0.0008	0.0025	0.00224 J	0.002	0.005	<0.000300	0.0003	0.001
	1403158-03	3/19/2014	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1405261-17	5/21/2014	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1407278-17	7/22/2014	0.00357	0.0008	0.0025	0.00230 J	0.002	0.005	0.000356 J	0.0003	0.001
MW-17	1105024-13	5/3/2011	**0.0353**	0.0008	0.0025	0.00525	0.002	0.005	0.000855 J	0.0003	0.001
	1207088-05	7/10/2012	**0.00828**	0.0008	0.0025	0.00595	0.002	0.005	0.000705 J	0.0003	0.001
	1212276-06	12/26/2012	**0.0454**	0.0008	0.0025	0.00730	0.002	0.005	<0.000300	0.0003	0.001
	1303040-06	3/5/2013	**0.0314**	0.0008	0.0025	0.00537	0.002	0.005	0.000365 J	0.0003	0.001
	1306108-06	6/11/2013	**0.0436**	0.0008	0.0025	**0.0115**	0.002	0.005	<0.000300	0.0003	0.001
	1401180-20	1/23/2014	**0.0256**	0.0008	0.0025	0.00472	0.002	0.005	<0.000300	0.0003	0.001
	1403158-20	3/19/2014	**0.0490**	0.0008	0.0025	**0.0149**	0.002	0.005	<0.000300	0.0003	0.001
	1405261-09	5/21/2014	**0.0427**	0.0008	0.0025	0.00889	0.002	0.005	<0.000300	0.0003	0.001

Table 1. Summary of Groundwater Analytical Results
Rockwool Industries, Inc. Federal Superfund Site
1741 Taylors Valley Road, Belton, Bell County, Texas

Sample ID	Lab Sample ID	Sample Date	Antimony (mg/L)	SDL (mg/L)	MQL (mg/L)	Arsenic (mg/L)	SDL (mg/L)	MQL (mg/L)	Lead (mg/L)	SDL (mg/L)	MQL (mg/L)
PRGs (mg/L)			**0.006**			**0.010**			**0.005**		
MW-17 Cont.	1407278-09	7/22/2014	**0.0354**	0.0008	0.0025	**0.0137**	0.002	0.005	<0.000300	0.0003	0.001
MW-18	1303040-25	3/6/2013	0.00118 J	0.0008	0.0025	0.00785	0.002	0.005	<0.000300	0.0003	0.001
	1306108-07	6/10/2013	<0.000800	0.0008	0.0025	0.00699	0.002	0.005	**0.00601**	0.0003	0.001
	1401180-16	1/22/2014	0.000809 J	0.0008	0.0025	0.00265 J	0.002	0.005	0.000877 J	0.0003	0.001
	1403158-07	3/19/2014	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	0.00115	0.0003	0.001
	1405261-21	5/21/2014	0.00117 U-RB	0.0008	0.0025	<0.00200	0.002	0.005	0.000982 J	0.0003	0.001
	1407278-21	7/22/2014	0.00127 J	0.0008	0.0025	0.00234 J	0.002	0.005	0.000433 J	0.0003	0.001
MW-19	1207088-06	7/11/2012	0.00140 J	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1212276-07	12/27/2012	0.00127 J	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1303040-07	3/5/2013	0.00126 J	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1306108-08	6/10/2013	0.00148 J	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1401180-13	1/22/2014	0.00141 J	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1403158-05	3/19/2014	0.00122 J	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1405261-19	5/21/2014	0.00121 U-RB	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1407278-19	7/22/2014	0.00151 J	0.0008	0.0025	<0.00200	0.002	0.005	0.00110	0.0003	0.001
MW-20	1105024-01	5/3/2011	0.0028	0.0008	0.0025	0.00262 J	0.002	0.005	0.000845 J	0.0003	0.001
	1207088-16	7/11/2012	0.00236 J	0.0008	0.0025	0.00267 J	0.002	0.005	0.000420 J	0.0003	0.001
	1212276-19	12/27/2012	0.00180 J	0.0008	0.0025	0.00324 J	0.002	0.005	0.000316 J	0.0003	0.001
	1303040-18	3/6/2013	0.00211 J	0.0008	0.0025	0.00316 J	0.002	0.005	<0.000300	0.0003	0.001
	1306108-18	6/11/2013	0.00198 J	0.0008	0.0025	0.00322 J	0.002	0.005	<0.000300	0.0003	0.001
	1401180-02	1/21/2014	0.000879 J	0.0008	0.0025	<0.00200	0.002	0.005	0.000554 J	0.0003	0.001
	1403158-01	3/19/2014	0.00152 J	0.0008	0.0025	0.00205 J	0.002	0.005	0.000669 J	0.0003	0.001
	1405261-15	5/21/2014	0.00193 U-RB	0.0008	0.0025	0.00263 J	0.002	0.005	<0.000300	0.0003	0.001
	1407278-15	7/22/2014	<0.000800	0.0008	0.0025	0.00254 J	0.002	0.005	<0.000300	0.0003	0.001

Table 1. Summary of Groundwater Analytical Results
Rockwool Industries, Inc. Federal Superfund Site
1741 Taylors Valley Road, Belton, Bell County, Texas

Sample ID	Lab Sample ID	Sample Date	Antimony (mg/L)	SDL (mg/L)	MQL (mg/L)	Arsenic (mg/L)	SDL (mg/L)	MQL (mg/L)	Lead (mg/L)	SDL (mg/L)	MQL (mg/L)
PRGs (mg/L)			**0.006**			**0.010**			**0.005**		
MW-21	1105024-02	5/2/2011	**0.105**	0.0008	0.0025	**0.016**	0.002	0.005	<0.000300	0.0003	0.001
	1207088-17	7/11/2012	**0.303** JI-FD	0.0008	0.0025	0.00921	0.002	0.005	0.00267 JI-FD	0.0003	0.001
	1212276-20	12/27/2012	**0.371**	0.0008	0.0025	0.00327 J	0.002	0.005	0.000354 J	0.0003	0.001
	1303040-19	3/6/2013	**0.325**	0.0008	0.0025	0.00276 J	0.002	0.005	**0.00566** JI-FD	0.0003	0.001
	1306108-19	6/11/2013	**0.361**	0.0008	0.0025	0.00295 J	0.002	0.005	<0.000300	0.0003	0.001
	1401180-04	1/21/2014	**0.336**	0.0008	0.0025	<0.00200	0.002	0.005	0.000335 J	0.0003	0.001
	1403158-17	3/19/2014	**0.211**	0.0008	0.0025	<0.00200	0.002	0.005	0.000322 J	0.0003	0.001
	1405261-03	5/21/2014	**0.309**	0.0008	0.0025	0.00596	0.002	0.005	<0.000300	0.0003	0.001
	1407278-03	7/22/2014	**0.218**	0.0008	0.0025	0.00778	0.002	0.005	0.00161 JI-DL	0.0003	0.001
DUP-1 (MW-21)	1105024-06	5/2/2011	**0.120**	0.0008	0.0025	**0.014**	0.002	0.005	<0.000300	0.0003	0.001
	1207088-22	7/11/2012	**0.428** JI-FD	0.0008	0.0025	0.00545	0.002	0.005	0.00100 JI-FD	0.0003	0.001
	1212276-15	12/27/2012	**0.304**	0.0008	0.0025	0.00293	0.002	0.005	0.000523 J	0.0003	0.001
	1303040-17	3/6/2013	**0.335**	0.0008	0.0025	0.00339 J	0.002	0.005	**0.0112** JI-FD	0.0003	0.001
	1306108-24	6/11/2013	**0.349**	0.0008	0.0025	0.00269 J	0.002	0.005	<0.000300	0.0003	0.001
MW-22	1105024-08	5/3/2011	0.00199 J	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1207088-18	7/11/2012	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	0.00368	0.0003	0.001
	1212276-21	12/27/2012	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	0.000629 J	0.0003	0.001
	1303040-20	3/6/2013	0.00146 J	0.0008	0.0025	<0.00200	0.002	0.005	0.000856 J	0.0003	0.001
	1306108-20	6/11/2013	0.00103 J	0.0008	0.0025	<0.00200	0.002	0.005	0.000461 J	0.0003	0.001
	1401180-01	1/21/2014	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1403158-12	3/19/2014	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	0.000474 J	0.0003	0.001
	1405261-01	5/21/2014	0.00218 U-RB	0.0008	0.0025	<0.00200	0.002	0.005	0.000312 J	0.0003	0.001
	1407278-01	7/22/2014	0.00188 J	0.0008	0.0025	<0.00200	0.002	0.005	0.000573 JI-DL	0.0003	0.001
MW-24-90	1105024-14	5/3/2011	**0.00717**	0.0008	0.0025	**0.011**	0.002	0.005	0.000986 J	0.0003	0.001
	1207088-07	7/11/2012	0.00352	0.0008	0.0025	0.00215 J	0.002	0.005	<0.000300	0.0003	0.001

Table 1. Summary of Groundwater Analytical Results
Rockwool Industries, Inc. Federal Superfund Site
1741 Taylors Valley Road, Belton, Bell County, Texas

Sample ID	Lab Sample ID	Sample Date	Antimony (mg/L)	SDL (mg/L)	MQL (mg/L)	Arsenic (mg/L)	SDL (mg/L)	MQL (mg/L)	Lead (mg/L)	SDL (mg/L)	MQL (mg/L)
PRGs (mg/L)			**0.006**			**0.010**			**0.005**		
MW-24-90 Cont.	1212276-08	12/27/2012	0.00566	0.0008	0.0025	**0.0104**	0.002	0.005	0.000684 J	0.0003	0.001
	1303040-08	3/5/2013	**0.00627**	0.0008	0.0025	0.00821	0.002	0.005	0.000551 J	0.0003	0.001
	1306108-09	6/10/2013	**0.00982**	0.0008	0.0025	0.00458 J	0.002	0.005	<0.000300	0.0003	0.001
	1401180-15	1/22/2014	**0.0128**	0.0008	0.0025	**0.0124**	0.002	0.005	0.001320	0.0003	0.001
	1403158-06	3/19/2014	**0.0128**	0.0008	0.0025	**0.0119**	0.002	0.005	0.000962 J	0.0003	0.001
	1405261-20	5/21/2014	**0.0171**	0.0008	0.0025	**0.0122**	0.002	0.005	0.000779 J	0.0003	0.001
	1407278-20	7/22/2014	**0.0673**	0.0008	0.0025	**0.0484**	0.002	0.005	0.00479	0.0003	0.001
MW-27-90	1207088-08	7/11/2012	**0.0717**	0.0008	0.0025	<0.00200	0.002	0.005	0.000480 J	0.0003	0.001
	1212276-09	12/28/2012	**0.0639**	0.0008	0.0025	0.00218 J	0.002	0.005	0.000508 J	0.0003	0.001
	1303040-09	3/5/2013	**0.0630**	0.0008	0.0025	0.00221 J	0.002	0.005	<0.000300	0.0003	0.001
	1306108-10	6/11/2013	**0.0624**	0.0008	0.0025	0.00211 J	0.002	0.005	<0.000300	0.0003	0.001
	1401180-19	1/23/2014	**0.0554**	0.0008	0.0025	0.00219 J	0.002	0.005	0.000746 J	0.0003	0.001
	1403158-08	3/19/2014	**0.0562**	0.0008	0.0025	0.00210 J	0.002	0.005	0.00176	0.0003	0.001
	1405261-22	5/21/2014	**0.0554**	0.0008	0.0025	0.00302 J	0.002	0.005	0.00194	0.0003	0.001
	1407278-22	7/22/2014	**0.0516**	0.0008	0.0025	0.00224 J	0.002	0.005	0.00498	0.0003	0.001
MW-28-90	1207088-09	7/11/2012	**0.0299**	0.0008	0.0025	**0.0689**	0.002	0.005	0.000735 J	0.0003	0.001
	1212276-10	12/28/2012	**0.0254**	0.0008	0.0025	**0.0496**	0.002	0.005	<0.000300	0.0003	0.001
	1303040-10	3/5/2013	**0.0224**	0.0008	0.0025	**0.0508**	0.002	0.005	<0.000300	0.0003	0.001
	1306108-11	6/10/2013	**0.0254**	0.0008	0.0025	**0.0554**	0.002	0.005	<0.000300	0.0003	0.001
	1401180-21	1/23/2014	**0.0412**	0.0008	0.0025	**0.125**	0.002	0.005	0.000501 J	0.0003	0.001
	1403158-09	3/19/2014	0.00586	0.0008	0.0025	**0.0168**	0.002	0.005	0.00112	0.0003	0.001
	1405261-23	5/21/2014	**0.0399**	0.0008	0.0025	**0.106**	0.002	0.005	<0.000300	0.0003	0.001
	1407278-23	7/22/2014	**0.0405**	0.0008	0.0025	**0.104**	0.002	0.005	0.00054	0.0003	0.001
MW-29-90	1207088-10	7/11/2012	**0.0283**	0.0008	0.0025	0.00503	0.002	0.005	0.002310	0.0003	0.001
	1212276-11	12/27/2012	**0.00629**	0.0008	0.0025	0.00790	0.002	0.005	0.000433 J	0.0003	0.001

Table 1. Summary of Groundwater Analytical Results
Rockwool Industries, Inc. Federal Superfund Site
1741 Taylors Valley Road, Belton, Bell County, Texas

Sample ID	Lab Sample ID	Sample Date	Antimony (mg/L)	SDL (mg/L)	MQL (mg/L)	Arsenic (mg/L)	SDL (mg/L)	MQL (mg/L)	Lead (mg/L)	SDL (mg/L)	MQL (mg/L)
PRGs (mg/L)			**0.006**			**0.010**			**0.005**		
MW-29-90 Cont.	1303040-11	3/5/2013	**0.0306**	0.0008	0.0025	0.00270 J	0.002	0.005	<0.000300	0.0003	0.001
	1306108-12	6/11/2013	**0.0221**	0.0008	0.0025	0.00270 J	0.002	0.005	0.000802 J	0.0003	0.001
	1401180-17	1/22/2014	**0.0169**	0.0008	0.0025	0.00441 J	0.002	0.005	0.00159	0.0003	0.001
	1403158-19	3/19/2014	**0.0254**	0.0008	0.0025	0.00514	0.002	0.005	0.00359	0.0003	0.001
	1405261-08	5/21/2014	**0.0217**	0.0008	0.0025	0.00275 J	0.002	0.005	0.00123	0.0003	0.001
	1407278-08	7/22/2014	**0.0274**	0.0008	0.0025	0.00763	0.002	0.005	0.00235 JI-DL	0.0003	0.001
MW-30-90	1207088-11	7/11/2012	0.00116 J	0.0008	0.0025	0.00269 J	0.002	0.005	**0.0113**	0.0003	0.001
	1212276-12	12/28/2012	0.00102 J	0.0008	0.0025	<0.00200	0.002	0.005	0.00107	0.0003	0.001
	1303040-12	3/5/2013	0.000839 J	0.0008	0.0025	<0.00200	0.002	0.005	0.00129	0.0003	0.001
	1306108-13	6/10/2013	0.00121 J	0.0008	0.0025	0.00205 J	0.002	0.005	0.00378	0.0003	0.001
	1401180-14	1/22/2014	0.00128 J	0.0008	0.0025	<0.00200	0.002	0.005	0.00150	0.0003	0.001
	1403158-18	3/19/2014	0.00146 J	0.0008	0.0025	<0.00200	0.002	0.005	0.00380	0.0003	0.001
	1405261-07	5/21/2014	0.00151 U-RB	0.0008	0.0025	0.00205 J	0.002	0.005	**0.00586**	0.0003	0.001
	1407278-07	7/22/2014	0.00152 J	0.0008	0.0025	0.00372 J	0.002	0.005	**0.0107** JI-DL	0.0003	0.001
MW-33-90	1105024-15	5/4/2011	**0.174**	0.0008	0.0025	**0.0347**	0.002	0.005	0.000732 J	0.0003	0.001
	1207088-12	7/10/2012	**0.159**	0.0008	0.0025	**0.0312**	0.002	0.005	<0.000300	0.0003	0.001
	1212276-13	12/26/2012	**0.150**	0.0008	0.0025	**0.0283**	0.002	0.005	<0.000300	0.0003	0.001
	1303040-13	3/5/2013	**0.131**	0.0008	0.0025	**0.0301**	0.002	0.005	<0.000300	0.0003	0.001
	1306108-14	6/11/2013	**0.138**	0.0008	0.0025	**0.0314**	0.002	0.005	<0.000300	0.0003	0.001
	1401180-22	1/23/2014	**0.132**	0.0008	0.0025	**0.0321**	0.002	0.005	0.000768 J	0.0003	0.001
	1403158-21	3/19/2014	**0.131**	0.0008	0.0025	**0.0387**	0.002	0.005	<0.000300	0.0003	0.001
	1405261-10	5/21/2014	**0.126**	0.0008	0.0025	**0.0296**	0.002	0.005	<0.000300	0.0003	0.001
	1407278-10	7/22/2014	**0.140**	0.0008	0.0025	**0.0260**	0.002	0.005	<0.000300	0.0003	0.001
MW-34-90	1105024-16	5/4/2011	**0.315**	0.0008	0.0025	**0.358**	0.002	0.005	0.000650 J	0.0003	0.001
	1207088-13	7/10/2012	**0.323**	0.0008	0.0025	**0.391**	0.002	0.005	<0.000300	0.0003	0.001

Table 1. Summary of Groundwater Analytical Results
Rockwool Industries, Inc. Federal Superfund Site
1741 Taylors Valley Road, Belton, Bell County, Texas

Sample ID	Lab Sample ID	Sample Date	Antimony (mg/L)	SDL (mg/L)	MQL (mg/L)	Arsenic (mg/L)	SDL (mg/L)	MQL (mg/L)	Lead (mg/L)		SDL (mg/L)	MQL (mg/L)
PRGs (mg/L)			**0.006**			**0.010**			**0.005**			
MW-34-90 Cont.	1212276-14	12/26/2012	**0.310**	0.0008	0.0025	**0.352**	0.002	0.005	<0.000300		0.0003	0.001
	1303040-14	3/5/2013	**0.306**	0.0008	0.0025	**0.346**	0.002	0.005	<0.000300		0.0003	0.001
	1306108-15	6/11/2013	**0.327**	0.0008	0.0025	**0.398**	0.002	0.005	<0.000300		0.0003	0.001
	1401180-23	1/23/2014	**0.306**	0.0008	0.0025	**0.415**	0.002	0.005	<0.000300		0.0003	0.001
	1403158-22	3/19/2014	**0.305**	0.0008	0.0025	**0.447**	0.002	0.005	0.000894	J	0.0003	0.001
	1405261-11	5/21/2014	**0.324**	0.0008	0.0025	**0.383**	0.002	0.005	<0.000300		0.0003	0.001
	1407278-11	7/22/2014	**0.314**	0.0008	0.0025	**0.433**	0.002	0.005	<0.000300		0.0003	0.001
DUP-2 (MW-34-90)	1105024-17	5/4/2011	**0.320**	0.0008	0.0025	**0.408**	0.002	0.005	0.00201	J	0.0003	0.001
	1207088-14	7/10/2012	**0.318**	0.0008	0.0025	**0.378**	0.002	0.005	<0.000300		0.0003	0.001
	1212276-16	12/26/2012	**0.304**	0.0008	0.0025	**0.340**	0.002	0.005	<0.000300		0.0003	0.001
	1303040-15	3/5/2013	**0.302**	0.0008	0.0025	**0.345**	0.002	0.005	<0.000300		0.0003	0.001
	1306108-16	6/11/2013	**0.337**	0.0008	0.0025	**0.413**	0.002	0.005	<0.000300		0.0003	0.001
	1401180-26	1/23/2014	**0.300**	0.0008	0.0025	**0.410**	0.002	0.005	<0.000300		0.0003	0.001
	1403158-24	3/19/2014	**0.316**	0.0008	0.0025	**0.463**	0.002	0.005	0.00114		0.0003	0.001
	1405261-13	5/21/2014	**0.329**	0.0008	0.0025	**0.377**	0.002	0.005	<0.000300		0.0003	0.001
	1407278-13	7/22/2014	**0.318**	0.0008	0.0025	**0.424**	0.002	0.005	<0.000300		0.0003	0.001
MW-35-90	1105024-03	5/3/2011	**1.01**	0.08	0.0025	**0.076**	0.002	0.005	0.00166		0.0003	0.001
	1207088-19	7/11/2012	**0.526**	0.004	0.0125	**0.0904**	0.002	0.005	**0.0113**		0.0003	0.001
	1212276-22	12/28/2012	**0.464**	0.0008	0.0025	**0.0867**	0.002	0.005	**0.0366**		0.0003	0.001
	1303040-21	3/6/2013	**1.31**	0.008	0.025	**0.0957**	0.002	0.005	0.000598	J	0.0003	0.001
	1306108-21	6/11/2013	**0.85**	0.004	0.0125	**0.0955**	0.002	0.005	0.000834	J	0.0003	0.001
	1401180-06	1/21/2014	**0.604**	0.004	0.0125	**0.0803**	0.002	0.005	0.000511	J	0.0003	0.001
	1403158-15	3/19/2014	**0.166**	0.0008	0.0025	**0.0558**	0.002	0.005	**0.0479**	JI-FD	0.0003	0.001
	1405261-05	5/21/2014	**0.985**	0.008	0.0250	**0.0943**	0.002	0.005	0.000506	J	0.0003	0.001
	1407278-05	7/22/2014	**0.524**	0.008	0.0250	**0.0826**	0.002	0.005	0.00157	JI-DL	0.0003	0.001
DUP-1 (MW-35-90)	1401180-07	1/21/2014	**0.594**	0.004	0.0125	**0.0809**	0.002	0.005	0.000764	J	0.0003	0.001

Table 1. Summary of Groundwater Analytical Results
Rockwool Industries, Inc. Federal Superfund Site
1741 Taylors Valley Road, Belton, Bell County, Texas

Sample ID	Lab Sample ID	Sample Date	Antimony (mg/L)	SDL (mg/L)	MQL (mg/L)	Arsenic (mg/L)	SDL (mg/L)	MQL (mg/L)	Lead (mg/L)	SDL (mg/L)	MQL (mg/L)
PRGs (mg/L)			**0.006**			**0.010**			**0.005**		
DUP-1 (MW-35-90) Cont.	1403158-23	3/19/2014	**0.149**	0.0008	0.0025	**0.0446**	0.002	0.005	**0.0268** JI-FD	0.0003	0.001
	1405261-12	5/21/2014	**0.985**	0.0008	0.0250	**0.0922**	0.002	0.005	0.000525 J	0.0003	0.001
	1407278-12	7/22/2014	**0.516**	0.008	0.0250	**0.0835**	0.002	0.005	0.001690 JI-DL	0.0003	0.001
MW-37-90	1105024-04	5/3/2011	0.000933 J	0.0008	0.0025	**0.0145**	0.002	0.005	<0.000300	0.0003	0.001
	1207088-20	7/11/2012	0.00105 J	0.0008	0.0025	**0.0325**	0.002	0.005	<0.000300	0.0003	0.001
	1212276-23	12/27/2012	0.00098 J	0.0008	0.0025	**0.0602**	0.002	0.005	0.00046 J	0.0003	0.001
	1303040-22	3/6/2013	0.00144 J	0.0008	0.0025	**0.0451**	0.002	0.005	<0.000300	0.0003	0.001
	1306108-22	6/11/2013	0.00169 J	0.0008	0.0025	**0.036**	0.002	0.005	<0.000300	0.0003	0.001
	1401180-03	1/21/2014	0.00121 J	0.0008	0.0025	**0.0437**	0.002	0.005	<0.000300	0.0003	0.001
	1403158-13	3/19/2014	0.000951 J	0.0008	0.0025	**0.0213**	0.002	0.005	<0.000300	0.0003	0.001
	1405261-02	5/21/2014	0.000875 U-RB	0.0008	0.0025	0.00901	0.002	0.005	<0.000300	0.0003	0.001
	1407278-02	7/22/2014	0.00116 J	0.0008	0.0025	**0.0118**	0.002	0.005	<0.000300	0.0003	0.001
MW-38-90	1105024-05	5/3/2011	**0.0286**	0.0008	0.0025	**0.0121**	0.002	0.005	0.000334 J	0.0003	0.001
	1207088-21	7/11/2012	**0.131**	0.0008	0.0025	0.00681	0.002	0.005	0.00354	0.0003	0.001
	1212276-24	12/27/2012	**0.516**	0.0008	0.0025	0.00344 J	0.002	0.005	0.00247	0.0003	0.001
	1303040-23	3/6/2013	**0.911**	0.008	0.025	0.00418 J	0.002	0.005	0.000396 J	0.0003	0.001
	1306108-23	6/11/2013	**0.976**	0.004	0.0125	0.00498 J	0.002	0.005	0.000579 J	0.0003	0.001
	1401180-05	1/21/2014	**0.802**	0.004	0.0125	0.00412 J	0.002	0.005	<0.000300	0.003	0.001
	1403158-14	3/19/2014	**0.550**	0.004	0.0125	0.00258 J	0.002	0.005	<0.000300	0.003	0.001
	1405261-04	5/21/2014	**2.21**	0.008	0.0250	0.00599	0.002	0.005	<0.000300	0.0003	0.001
	1407278-04	7/22/2014	**0.303**	0.0008	0.0025	0.00737	0.002	0.005	0.000703 JI-DL	0.003	0.001

Table 1. Summary of Groundwater Analytical Results
Rockwool Industries, Inc. Federal Superfund Site
1741 Taylors Valley Road, Belton, Bell County, Texas

Sample ID	Lab Sample ID	Sample Date	Antimony (mg/L)	SDL (mg/L)	MQL (mg/L)	Arsenic (mg/L)	SDL (mg/L)	MQL (mg/L)	Lead (mg/L)	SDL (mg/L)	MQL (mg/L)
PRGs (mg/L)			**0.006**			**0.010**			**0.005**		
ER-1	1105024-07	5/3/2011	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1207088-15	7/10/2012	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1212276-17	12/26/2011	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1303040-16	3/5/2013	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1306108-17	6/10/2013	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1401180-08	1/21/2014	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1403158-11	3/19/2014	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1405261-14	5/21/2014	0.000875 J	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1407278-14	7/22/2014	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
ER-2	1105024-18	5/4/2011	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1207088-23	7/11/2012	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1212276-18	12/27/2012	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1303040-24	3/6/2013	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1306108-25	6/11/2013	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
	1401180-18	1/22/2014	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001
ER-3	1401180-25	1/23/2014	<0.000800	0.0008	0.0025	<0.00200	0.002	0.005	<0.000300	0.0003	0.001

Notes:
Values in **bold** indicate results above PRGs.
PRGs = Preliminary Remediation Goals.
SDL = Sample Detection Limit.
MQL = Method Quantitation Limit, adusted for moisture and sample size.
J = Estimated result /analyte detected between SDL and MQL.
I = Bias in sample result is indeterminate.
FD = Field duplicate evaluation criteria not met.
U-RB = Not detected due to equipment blank contamination.
JI-FD = Estimated result with indeterminant bias due to field duplicate imprecision.
JI-DL = Estimated result with indeterminant bias due to serial dilution imprecision.

Table 2. Water Level Measurements and Groundwater Elevation Data
Rockwool Industries, Inc. Federal Superfund Site
1741 Taylors Valley Road, Belton, Bell County, Texas

Well ID	Northing (ft)	Easting (ft)	TOC Elevation	Date	DTW (ft bgs)	TD (ft bgs)	Groundwater Surface Elevation (ft)	Top of Limestone Elevation (ft)
MW-7	10358000.55	3201475.37	521.23	5/2/2011	30.40	35.10	490.83	491.8
				7/10/2012	30.35		490.88	
				12/26/2012	30.34		490.89	
				3/4/2013	31.02		490.21	
				6/10/2013	30.12		491.11	
				1/21/2014	29.85	35.32	491.38	
				3/19/2014	30.09		491.14	
				5/21/2014	29.81		491.42	
				7/22/2014	30.12	35.56	491.11	
MW-9	10357733.35	3201552.67	518.86	5/2/2011	28.99	35.10	489.87	486.5
				7/10/2012	28.77		490.09	
				12/26/2012	28.94		489.92	
				3/4/2013	28.61		490.25	
				6/11/2013	28.23		490.63	
				1/21/2014	28.32	35.93	490.54	
				3/19/2014	28.77		490.09	
				5/21/2014	28.36		490.50	
				7/22/2014	28.21	33.92	490.65	
MW-10	10357635.35	3201683.33	518.45	5/2/2011	27.59	35.00	490.86	489.3
				7/10/2012	27.55		490.90	
				12/26/2012	29.84		488.61	
				3/4/2013	31.15		487.30	
				6/10/2013	32.47		485.98	
				1/21/2014	27.36	35.52	491.09	
				3/19/2014	27.61		490.84	
				5/21/2014	27.02		491.43	
				7/22/2014	27.09	35.38	491.36	
MW-11	10357652.64	3201805.07	519.37	5/2/2011	28.23	35.65	491.14	491.6
				7/10/2012	31.06		488.31	
				12/26/2012	32.98		486.39	
				3/4/2013	33.56		485.81	
				6/10/2013	34.02		485.35	
				1/21/2014	32.48	35.51	486.89	
				3/19/2014	32.59		486.78	
				5/21/2014	33.60		485.77	
				7/22/2014	34.57	35.51	484.80	

Table 2. Water Level Measurements and Groundwater Elevation Data
Rockwool Industries, Inc. Federal Superfund Site
1741 Taylors Valley Road, Belton, Bell County, Texas

Well ID	Northing (ft)	Easting (ft)	TOC Elevation	Date	DTW (ft bgs)	TD (ft bgs)	Groundwater Surface Elevation (ft)	Top of Limestone Elevation (ft)
MW-14	10357199.82	3202218.05	514.02	5/2/2011	DRY	41.00	---	477.5
				7/10/2012	DRY		---	
				12/26/2012	32.40		481.62	
				3/4/2013	32.09		481.93	
				6/10/2013	30.83		483.19	
				1/21/2014	30.54	41.04	483.48	
				3/19/2014	31.37		482.65	
				5/21/2014	25.50		488.52	
				7/22/2014	29.37	41.01	484.65	
MW-15	10358936.41	3202230.39	506.49	5/2/2011	DRY	unknown	---	488.0
				7/10/2012	Casing obstructed at 19.2'			
				12/26/2012	Casing obstructed at 19.2'			
				3/4/2013	Casing obstructed at 19.2'			
				6/10/2013	Casing obstructed at 19.2'			
				1/21/2014	Casing obstructed at 19.1' (silt?)			
				3/19/2014	DRY			
				5/21/2014	DRY			
				7/22/2014	DRY			
MW-16	10357985.96	3202227.94	519.22	5/2/2011	DRY	31.50	---	485.7
				7/10/2012	DRY		---	
				12/26/2012	DRY		---	
				3/4/2013	DRY		---	
				6/10/2013	DRY		---	
				1/21/2014	DRY		---	
				3/19/2014	DRY			
				5/21/2014	DRY			
				7/22/2014	DRY			
MW-17	10357494.71	3201976.57	518.18	5/2/2011	26.26	31.50	491.92	491.1
				7/10/2012	26.23		491.95	
				12/26/2012	26.25		491.93	
				3/4/2013	26.25		491.93	
				6/11/2013	26.16		492.02	
	Casing is bent; do not use for contouring.			1/21/2014	26.17	31.44	492.01	
				3/19/2014	26.23		491.95	
				5/21/2014	26.21		491.97	
				7/22/2014	26.17	31.47	492.01	

Table 2. Water Level Measurements and Groundwater Elevation Data
Rockwool Industries, Inc. Federal Superfund Site
1741 Taylors Valley Road, Belton, Bell County, Texas

Well ID	Northing (ft)	Easting (ft)	TOC Elevation	Date	DTW (ft bgs)	TD (ft bgs)	Groundwater Surface Elevation (ft)	Top of Limestone Elevation (ft)
MW-18	**?**	**?**	**?**	3/4/2013	32.42	39.25	---	No well log
				6/10/2013	33.31		---	
				1/21/2014	33.09	39.11	---	
				3/19/2014	33.45		---	
				5/21/2014	33.34		---	
				7/22/2014	32.94	39.21	---	
MW-19	10357815.89	3202478.34	520.31	5/2/2011	32.64	34.30	487.67	487.5
				7/11/2012	31.98		488.33	
				12/26/2012	32.16		488.15	
				3/4/2013	32.12		488.19	
				6/10/2013	32.03		488.28	
				1/21/2014	31.74	33.99	488.57	
				3/19/2014	32.11		488.20	
				5/21/2014	32.08		488.23	
				7/22/2014	31.54	33.99	488.77	
MW-20	10358596.28	3202126.66	**519.70**	5/2/2011	32.26	39.20	487.44	No well log
				7/11/2012	31.77		487.93	
				12/26/2012	32.15		487.55	
				3/4/2013	32.24		487.46	
				6/11/2013	32.13		487.57	
				1/21/2014	31.63	39.18	488.07	
				3/19/2014	31.97		487.73	
				5/21/2014	32.04		487.66	
				7/22/2014	32.55	39.19	487.15	
MW-21	10358526.27	3202730.33	**505.11**	5/2/2011	10.92	15.50	494.19	No well log
				7/11/2012	9.98		495.13	
				12/26/2012	10.08		495.03	
				3/4/2013	9.75		495.36	
				6/11/2013	9.62		495.49	
				1/21/2014	9.77	15.77	495.34	
				3/19/2014	9.73		495.38	
				5/21/2014	8.98		496.13	
				7/22/2014	9.31	15.47	495.80	
MW-22	10358587.03	3202646.56	**505.18**	5/2/2011	11.37	14.56	493.81	No well log
				7/11/2012	11.94		493.24	
				12/26/2012	11.57		493.61	
				3/4/2013	11.04		494.14	
				6/11/2013	10.79		494.39	
				1/21/2014	11.05	14.65	494.13	
				3/19/2014	11.38		493.80	
				5/21/2014	10.41		494.77	
				7/22/2014	10.98	14.57	494.20	

Table 2. Water Level Measurements and Groundwater Elevation Data
Rockwool Industries, Inc. Federal Superfund Site
1741 Taylors Valley Road, Belton, Bell County, Texas

Well ID	Northing (ft)	Easting (ft)	TOC Elevation	Date	DTW (ft bgs)	TD (ft bgs)	Groundwater Surface Elevation (ft)	Top of Limestone Elevation (ft)
MW-24-90	10357535.22	3202554.55	518.46	5/2/2011	33.81	40.63	484.65	No well log
				7/11/2012	32.82		485.64	
				12/26/2012	33.53		484.93	
				3/4/2013	33.72		484.74	
				6/10/2013	33.67		484.79	
				1/21/2014	32.35	40.62	486.11	
				3/19/2014	33.19		485.27	
				5/21/2014	33.34		485.12	
				7/22/2014	32.35	40.68	486.11	
MW-27-90	10358240.31	3202111.37	519.76	5/2/2011	34.49	35.40	485.27	487.2
				7/11/2012	33.92		485.84	
				12/26/2012	34.38		485.38	
				3/4/2013	34.44		485.32	
				6/11/2013	34.34		485.42	
				1/21/2014	33.80	35.31	485.96	
				3/19/2014	34.21		485.55	
				5/21/2014	34.24		485.52	
				7/22/2014	33.63	35.32	486.13	
MW-28-90	10358377.38	3201743.14	519.84	5/2/2011	30.45	31.94	489.39	491.9
				7/11/2012	30.38		489.46	
				12/26/2012	30.46		489.38	
				3/4/2013	30.23		489.61	
				6/10/2013	30.10		489.74	
				1/21/2014	30.13	31.92	489.71	
				3/19/2014	30.29		489.55	
				5/21/2014	29.76		490.08	
				7/22/2014	30.03	31.92	489.81	
MW-29-90	10358223.82	3201524.01	517.56	5/2/2011	27.91	29.92	489.65	491.8
				7/11/2012	27.91		489.65	
				12/26/2012	27.90		489.66	
				3/4/2013	27.85		489.71	
				6/11/2013	27.79		489.77	
				1/21/2014	27.75	29.93	489.81	
				3/19/2014	27.92		489.64	
				5/21/2014	27.73		489.83	
				7/22/2014	27.80	29.96	489.76	

Table 2. Water Level Measurements and Groundwater Elevation Data
Rockwool Industries, Inc. Federal Superfund Site
1741 Taylors Valley Road, Belton, Bell County, Texas

Well ID	Northing (ft)	Easting (ft)	TOC Elevation	Date	DTW (ft bgs)	TD (ft bgs)	Groundwater Surface Elevation (ft)	Top of Limestone Elevation (ft)
MW-30-90	10357873.98	3202043.34	520.17	5/2/2011	27.74	28.40	492.43	491.4
				7/11/2012	27.74		492.43	
				12/26/2012	27.69		492.48	
				3/4/2013	27.63		492.54	
				6/10/2013	27.59		492.58	
				1/21/2014	27.61	28.31	492.56	
				3/19/2014	27.67		492.50	
				5/21/2014	27.64		492.53	
				7/22/2014	27.63	28.33	492.54	
MW-33-90	10357865.25	3201459.31	520.25	5/2/2011	30.32	33.00	489.93	488.4
				7/10/2012	30.11		490.14	
				12/26/2012	30.29		489.96	
				3/4/2013	29.94		490.31	
				6/11/2013	29.55		490.70	
				1/21/2014	29.56	32.94	490.69	
				3/19/2014	30.07		490.18	
				5/21/2014	29.68		490.57	
				7/22/2014	29.54	32.99	490.71	
MW-34-90	10357611.50	3201589.38	519.12	5/2/2011	29.09	32.50	490.03	487.9
				7/10/2012	28.89		490.23	
				12/26/2012	29.05		490.07	
				3/4/2013	28.74		490.38	
				6/11/2013	28.36		490.76	
				1/21/2014	28.42	32.46	490.70	
				3/19/2014	29.89		489.23	
				5/21/2014	28.52		490.60	
				7/22/2014	28.34	32.47	490.78	
MW-35-90	10358825.67	3202797.17	**501.03**	5/2/2011	16.61	16.72	484.42	No well log
				7/11/2012	16.23		484.80	
				12/26/2012	16.72		484.31	
				3/4/2013	15.22		485.81	
				6/11/2013	13.91		487.12	
				1/21/2014	14.96	17.25	486.07	
				3/19/2014	16.59		484.44	
				5/21/2014	13.79		487.24	
				7/22/2014	13.60	17.28	487.43	

Table 2. Water Level Measurements and Groundwater Elevation Data
Rockwool Industries, Inc. Federal Superfund Site
1741 Taylors Valley Road, Belton, Bell County, Texas

Well ID	Northing (ft)	Easting (ft)	TOC Elevation	Date	DTW (ft bgs)	TD (ft bgs)	Groundwater Surface Elevation (ft)	Top of Limestone Elevation (ft)
MW-36-90	10358815.08	3202843.96	**501.96**	5/2/2011	Casing obstructed at 2.5'			No well log
				7/11/2012	Casing obstructed at 2.5'			
				12/26/2012	Casing obstructed at 2.5'			
				3/4/2013	Casing obstructed at 2.5'			
Plugged and Abandoned on 5/31/2013.								
MW-37-90	10358806.57	3202888.58	**501.52**	5/2/2011	18.67	26.30	482.85	No well log
				7/11/2012	17.96		483.56	
				12/26/2012	19.08		482.44	
				3/4/2013	16.15		485.37	
				6/11/2013	15.03		486.49	
				1/21/2014	15.88	26.23	485.64	
				3/19/2014	18.16		483.36	
				5/21/2014	14.17		487.35	
				7/22/2014	14.09	26.26	487.43	
MW-38-90	10358674.78	3202942.28	**504.05**	5/2/2011	10.15	12.33	493.90	No well log
				7/11/2012	9.89		494.16	
				12/26/2012	10.19		493.86	
				3/4/2013	7.72		496.33	
				6/11/2013	7.52		496.53	
				1/21/2014	7.65	12.20	496.40	
				3/19/2014	8.68		495.37	
				5/21/2014	6.78		497.27	
				7/22/2014	7.14	12.23	496.91	

Notes:
Values in **bold** indicate top of casing elevations from Wendy Lopez and Associates (2001) survey.
All others elevations from Cook-Joyce (1985-1993) survey.
DTW = Depth-to-Water, from TOC
bgs = below ground surface
TOC = top of well casing
Monitoring wells MW-01, MW-02, MW-03, MW-04A, MW-05, MW-06, MW-08, MW-12, MW-23, MW-25-90, MW-26-90 and MW-32-90 were previously abandoned.

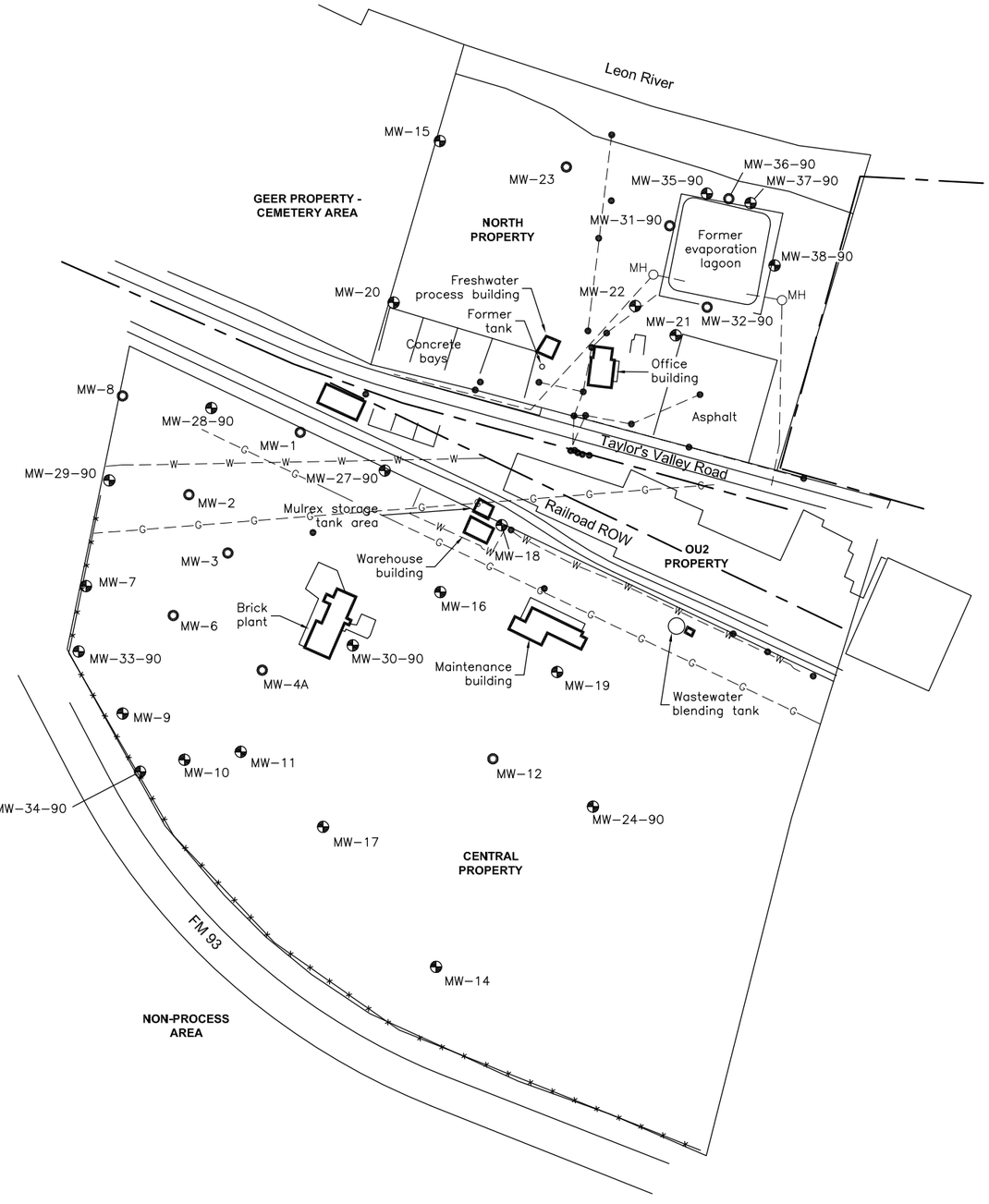
Figures

Ü

2010 Color Aerial Imagery Courtesy Google Earth

N:\Client\TCEQ-AIRS\Rockwool\Maps

Figure 1. Site Location Map
Rockwool Industries, Inc.
Federal Superfund Site
1741 Taylor Valley Road
Belton, Bell County, Texas
EPA ID No. TXD066379645
TCEQ Site ID No. SUP033



N

0 Approx. 300 ft

Explanation

- Monitor well
- Plugged and abandoned monitor well
- Underground utility line
- Gas line
- Utility or light pole
- Manhole
- Fence
- Property boundary

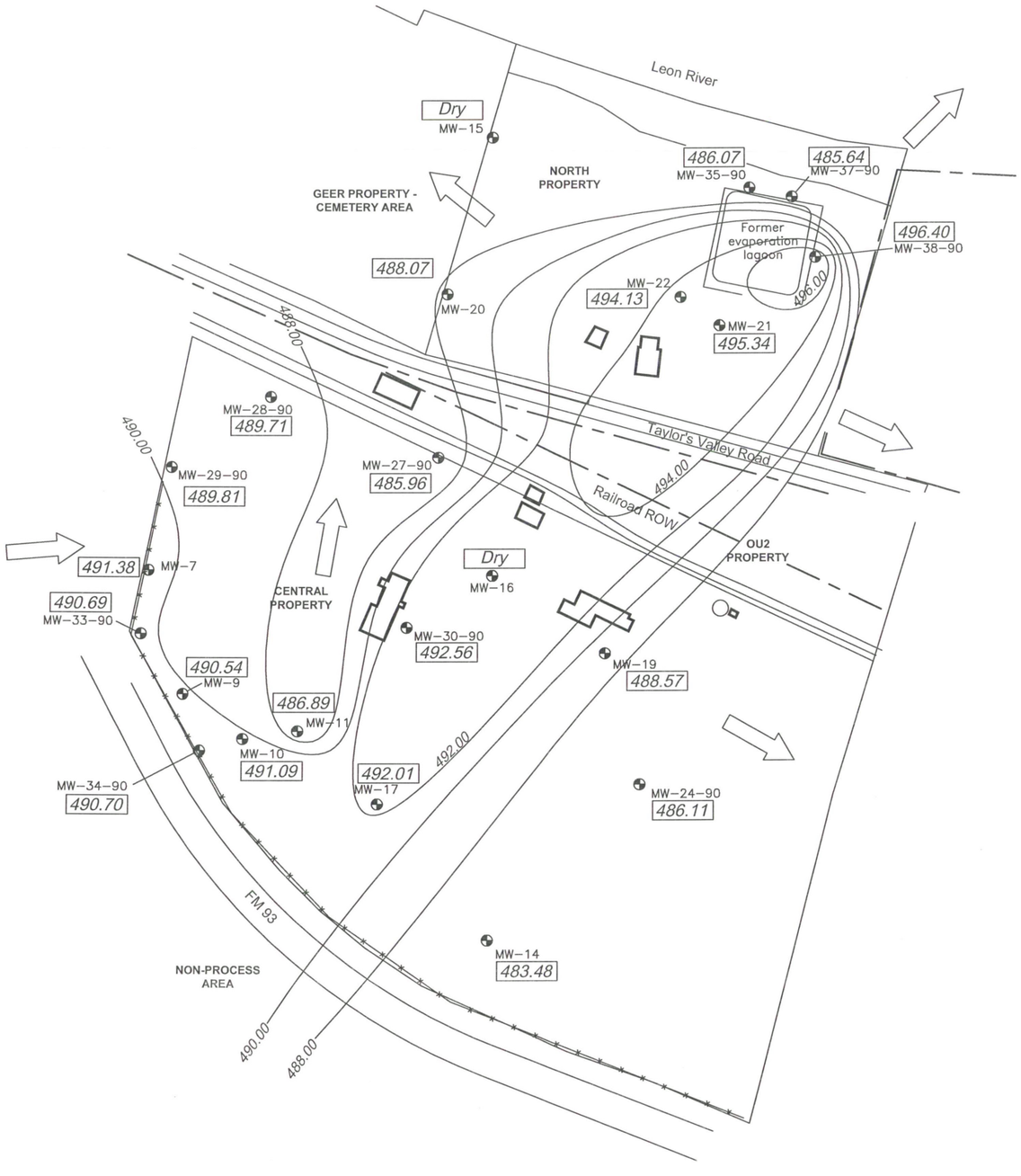
N:\Client\TCEQ–AIRS\Rockwool\Maps\Drawings\Rockwool f1a.dwg

Daniel B. Stephens & Associates, Inc.
6/26/2013

Rockwool Industries Superfund Site
1741 Taylor's Valley Rd
Belton, Texas

Site Map

Figure 2



N

0 Approx. 300 ft

Explanation

- Monitor well
- 490.83 Potentiometric surface elevation (ft msl)
- Groundwater flow direction
- 492.00 Potentiometric surface elevation contour (ft msl)
- Property boundary

N:\Client\TCEQ-AIRS\Rockwool\Maps\Drawings\Rockwool f4a.dwg

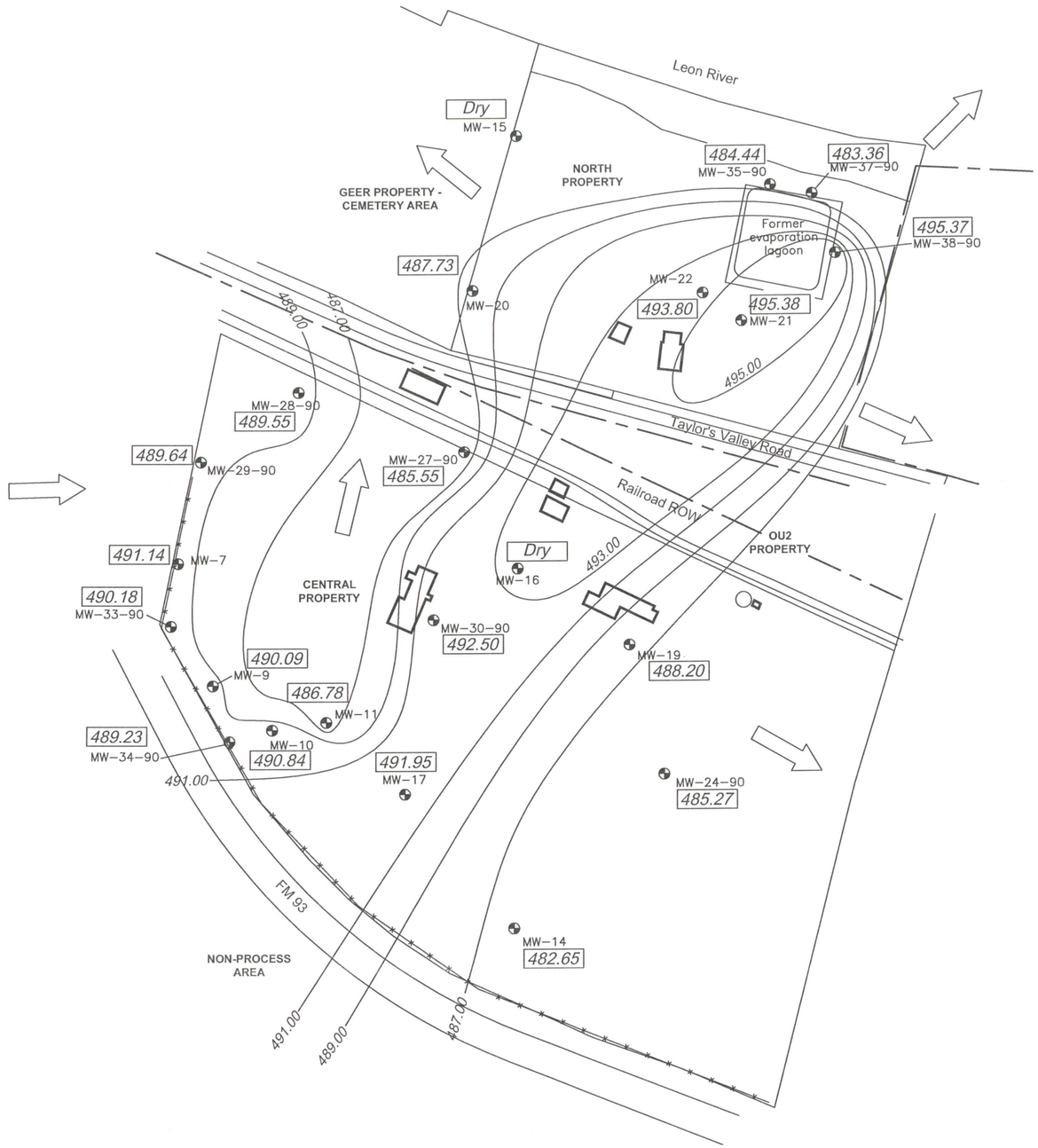
Daniel B. Stephens & Associates, Inc.
8/12/2014

STATE OF TEXAS
Paul B. Kirby
Geology
License #10841
LICENSED PROFESSIONAL GEOSCIENTIST
8/13/14

Rockwool Industries Superfund Site
1741 Taylor's Valley Rd
Belton, Texas

Potentiometric Surface Elevations
January 21, 2014

Figure 3a



N

0 Approx. 300 ft

Explanation

- Monitor well
- 490.83 Potentiometric surface elevation (ft msl)
- Groundwater flow direction
- 492.00 Potentiometric surface elevation contour (ft msl)
- Property boundary

N:\Client\TCEQ-AIRS\Rockwool\Maps\Drawings\Rockwool f4a.dwg

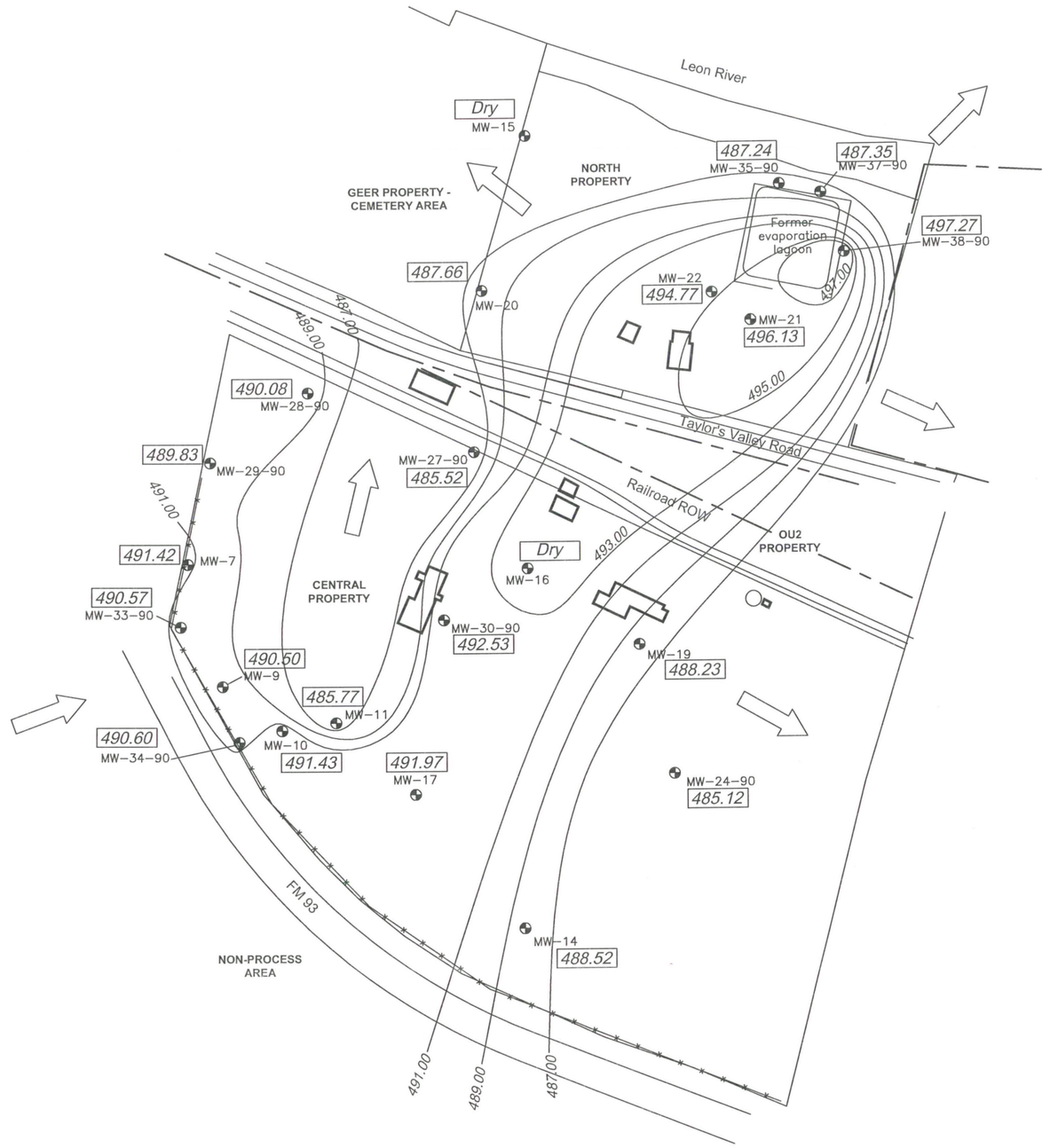
Daniel B. Stephens & Associates, Inc.
8/12/2014

STATE OF TEXAS
Paul B. Kirby
Geology
License #10841
LICENSED PROFESSIONAL GEOSCIENTIST
8/13/14

Rockwool Industries Superfund Site
1741 Taylor's Valley Rd
Belton, Texas

Potentiometric Surface Elevations
March 19, 2014

Figure 3b



N

0 Approx. 300 ft

Explanation

- Monitor well
- 490.83 Potentiometric surface elevation (ft msl)
- Groundwater flow direction
- 492.00 Potentiometric surface elevation contour (ft msl)
- Property boundary

STATE OF TEXAS
Paul B. Kirby
Geology
License #10841
LICENSED PROFESSIONAL GEOSCIENTIST
8/25/14

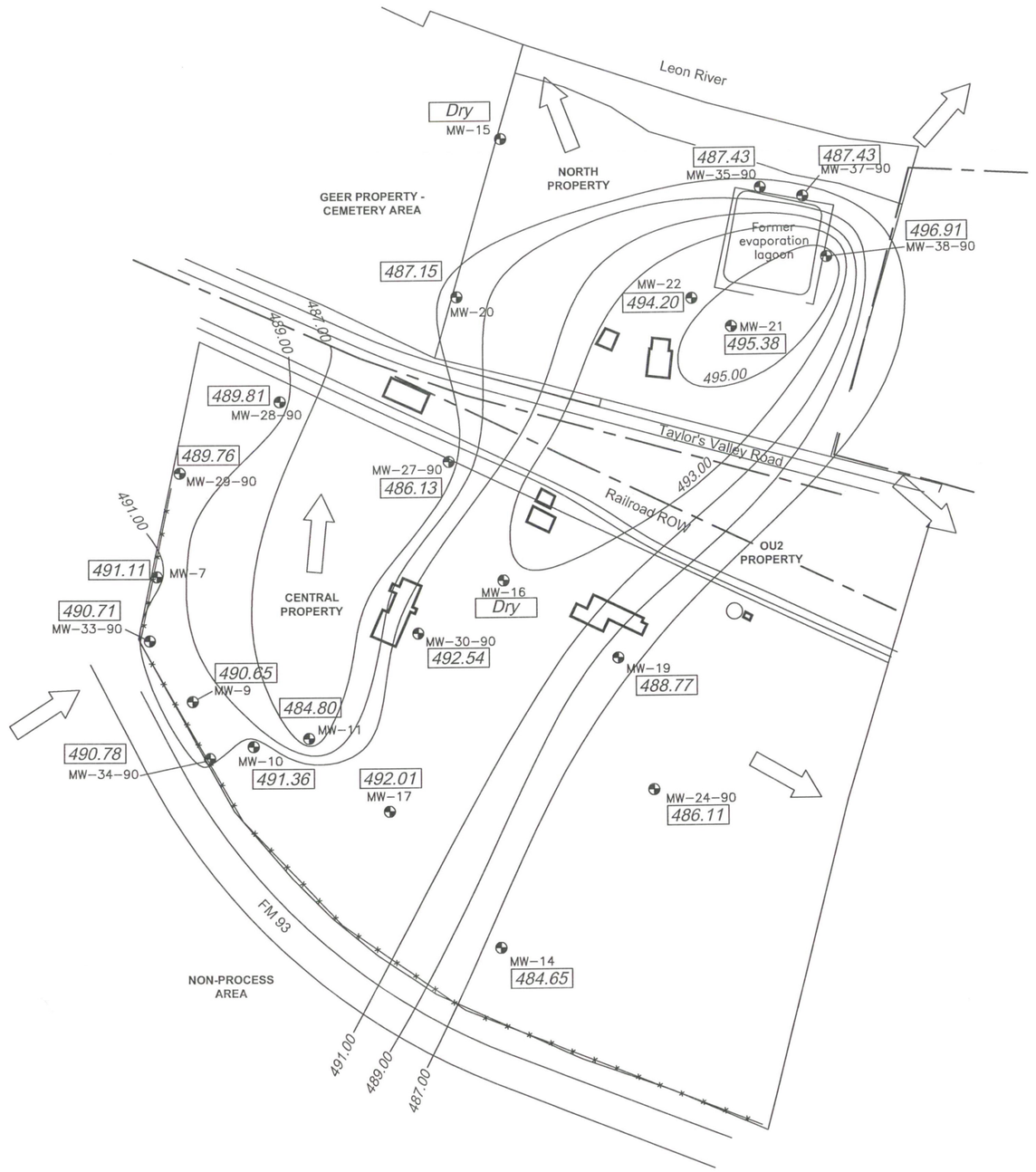
Rockwool Industries Superfund Site
1741 Taylor's Valley Rd
Belton, Texas

Potentiometric Surface Elevations
May 21, 2014

Figure 3c

Daniel B. Stephens & Associates, Inc.
8/12/2014

N:\Client\TCEQ-AIRS\Rockwool\Maps\Drawings\Rockwool f4a.dwg



N

0 Approx. 300 ft

Explanation

- Monitor well
- 490.83 — Potentiometric surface elevation (ft msl)
- Groundwater flow direction
- 492.00 — Potentiometric surface elevation contour (ft msl)
- Property boundary

STATE OF TEXAS
Paul B. Kirby
Geology
License #10841
LICENSED PROFESSIONAL GEOSCIENTIST
8/15/14

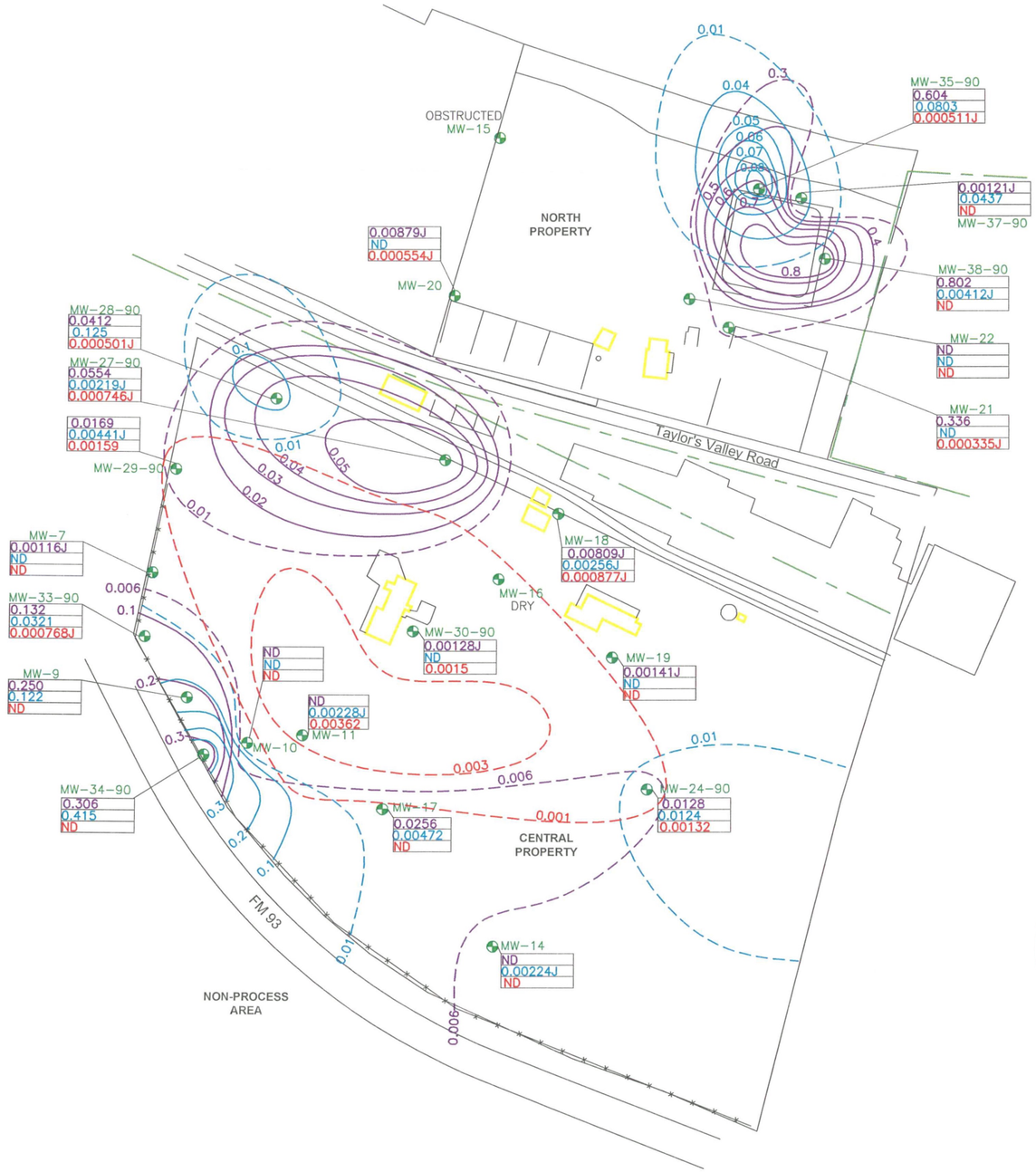
Rockwool Industries Superfund Site
1741 Taylor's Valley Rd
Belton, Texas

Potentiometric Surface Elevations
July 22, 2014

Figure 3d

Daniel B. Stephens & Associates, Inc.
8/12/2014

N:\Client\TCEQ-AIRS\Rockwool\Maps\Drawings\Rockwool f4a.dwg



N

0 Approx. 300 ft

Explanation

- Antimony (PRG = 0.006 mg/L)
- Arsenic (PRG = 0.010 mg/L)
- Lead (PRG = 0.005 mg/L)

Note: ND = Not Detected. The analyte was not detected above the SDL.

STATE OF TEXAS
Paul B. Kirby
Geology
License #10841
LICENSED
PROFESSIONAL GEOSCIENTIST
8/20/14

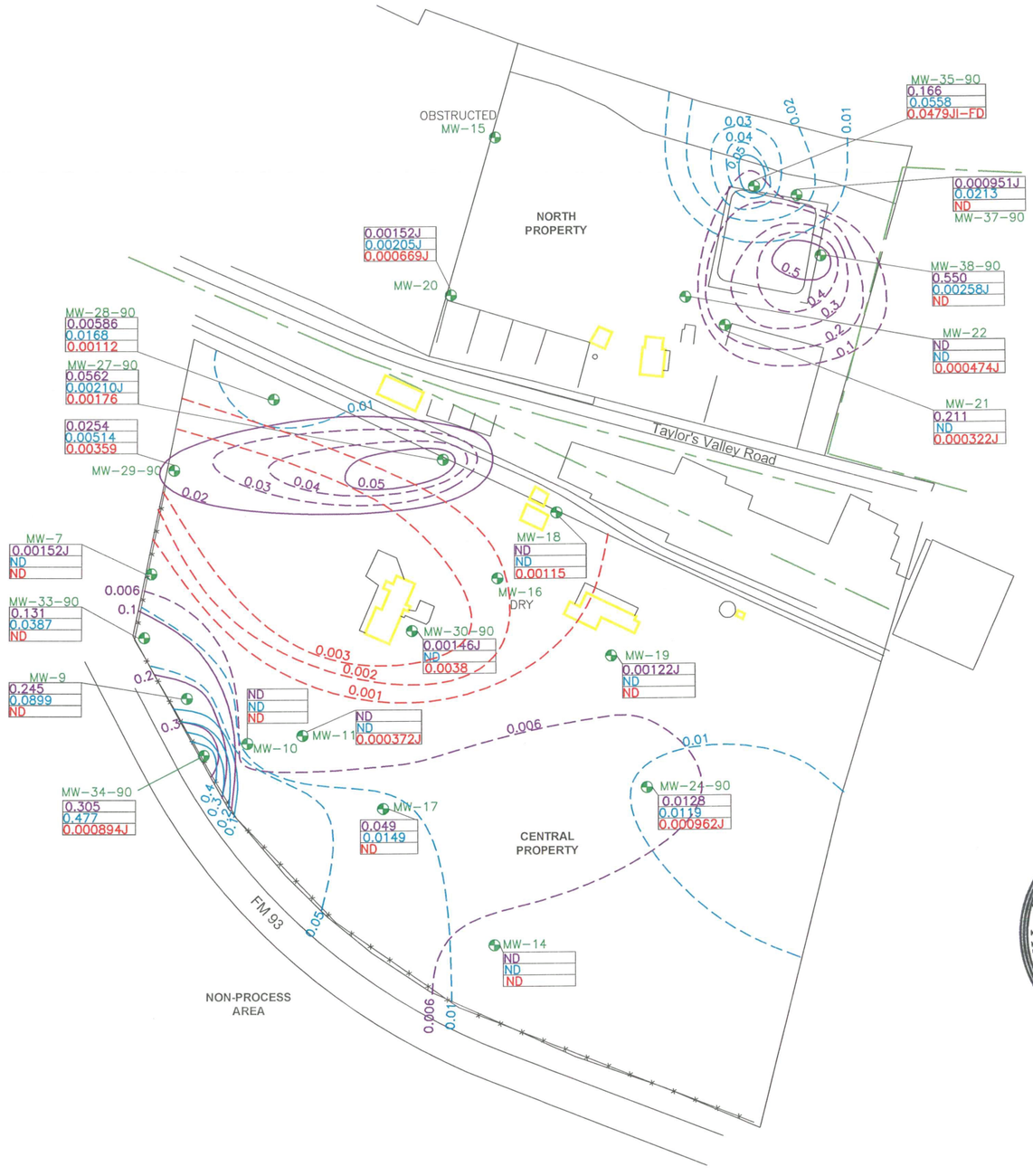
Rockwool Industries Superfund Site
1741 Taylor's Valley Rd
Belton, Texas

January 21-23, 2014 Contaminant Isoconcentration Map

Figure 4a

Daniel B. Stephens & Associates, Inc.
8/20/2014

N:\Client\TCEQ-AIRS\Rockwool\Maps\Drawings\Rockwool f4a_EL0713.dwg



N

0 Approx. 300 ft

Explanation

- Antimony (PRG = 0.006 mg/L)
- Arsenic (PRG = 0.010 mg/L)
- Lead (PRG = 0.005 mg/L)

Note: ND = Not Detected. The analyte was not detected above the SDL.

STATE OF TEXAS
Paul B. Kirby
Geology
License #10841
LICENSED PROFESSIONAL GEOSCIENTIST
8/25/14

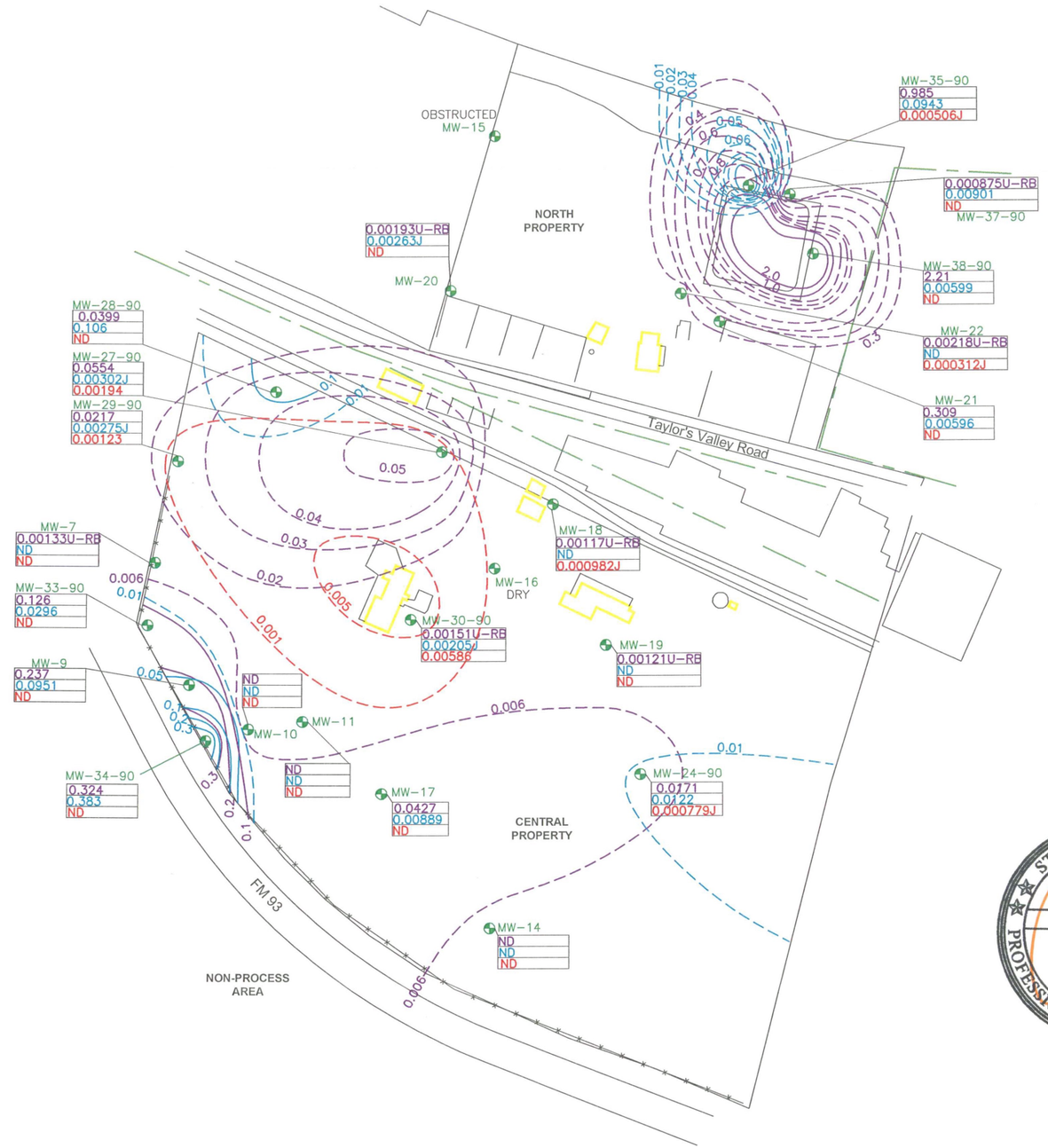
Daniel B. Stephens & Associates, Inc.
8/12/14

Rockwool Industries Superfund Site
1741 Taylor's Valley Rd
Belton, Texas

March 19, 2014 Contaminant Isoconcentration Map

Figure 4b

N:\Client\TCEQ-AIRS\Rockwool\Maps\Drawings\Rockwool f4a_EL0713.dwg



N

0 Approx. 300 ft

Explanation

- Antimony (PRG = 0.006 mg/L)
- Arsenic (PRG = 0.010 mg/L)
- Lead (PRG = 0.005 mg/L)

Note: ND = Not Detected. The analyte was not detected above the SDL.

STATE OF TEXAS
Paul B. Kirby
Geology
License #10841
LICENSED PROFESSIONAL GEOSCIENTIST
8/25/14

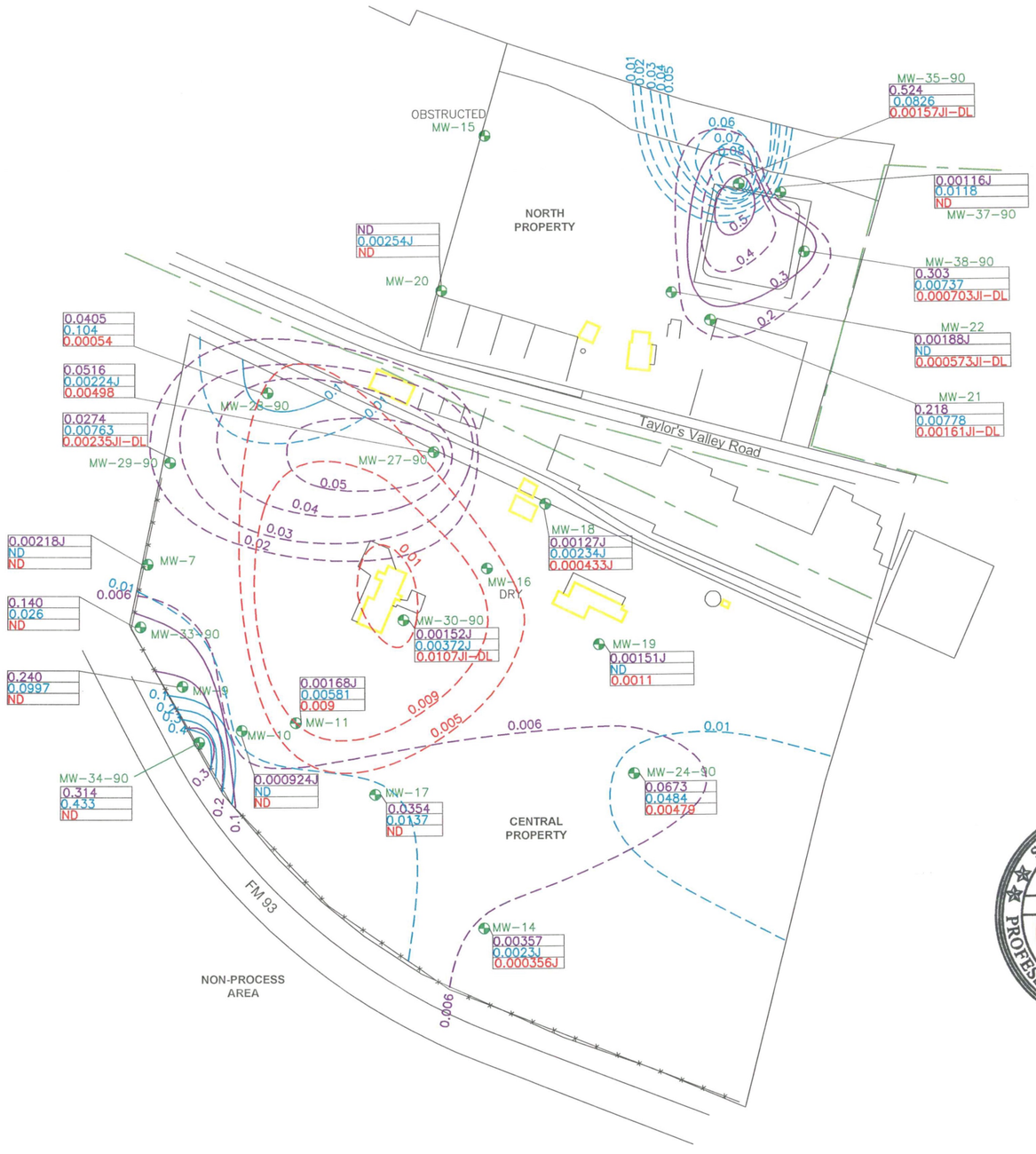
Daniel B. Stephens & Associates, Inc.
8/12/14

Rockwool Industries Superfund Site
1741 Taylor's Valley Rd
Belton, Texas

May 21, 2014 Contaminant Isoconcentration Map

Figure 4c

N:\Client\TCEQ-AIRS\Rockwool\Maps\Drawings\Rockwool f4c_EL0713.dwg



N

0 Approx. 300 ft

Explanation

- Antimony (PRG = 0.006 mg/L)
- Arsenic (PRG = 0.010 mg/L)
- Lead (PRG = 0.005 mg/L)

Note: ND = Not Detected. The analyte was not detected above the SDL.

STATE OF TEXAS
Paul B. Kirby
Geology
License #10841
LICENSED PROFESSIONAL GEOSCIENTIST
8/25/14

Daniel B. Stephens & Associates, Inc.
8/12/14

Rockwool Industries Superfund Site
1741 Taylor's Valley Rd
Belton, Texas

July 22, 2014 Contaminant Isoconcentration Map

Figure 4d

N:\Client\TCEQ-AIRS\Rockwool\Maps\Drawings\Rockwool f4a_EL0713.dwg

Appendix 1

Groundwater Monitoring Photographic Documentation

Photo #1
Date: May 21, 2014
Description: MW-7 Low-Flow Sampling on the Central Property.

Photo #2
Date: March 19, 2014
Description: MW-9 Low-Flow Sampling on the Central Property.

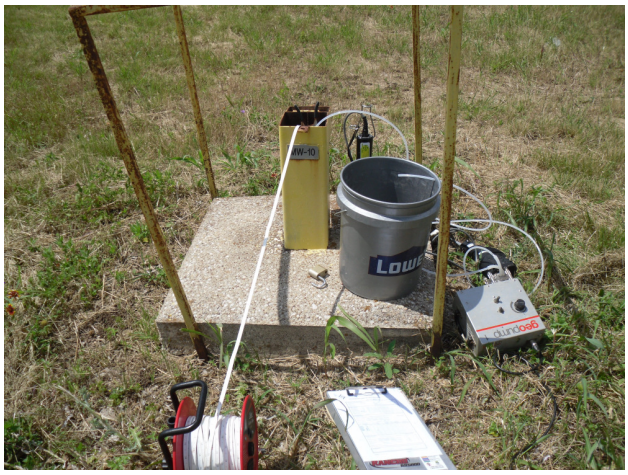


Photo #3
Date: May 21, 2014
Description: MW-10 Low-Flow Sampling on the Central Property.

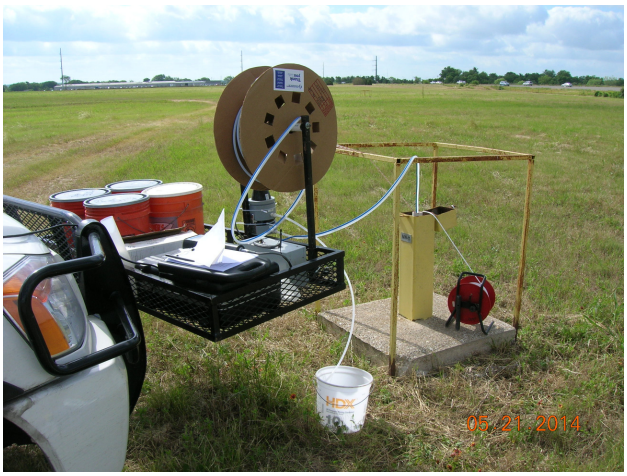


Photo #4
Date: May 21, 2014
Description: MW-11 Low-Flow Sampling on the Central Property.

Photo #5
Date: May 21, 2014
Description: MW-14 Low-Flow Sampling on the Central Property.

Photo #6
Date: May 21, 2014
Description: MW-17 Low-Flow Sampling on the Central Property.

Photo #7
Date: May 21, 2014
Description: MW-18 Low-Flow Sampling on the Central Property.

Photo #8
Date: May 21, 2014
Description: MW-19 Low-Flow Sampling on the Central Property.

Photo #9
Date: May 21, 2014
Description: MW-20 Low-Flow Sampling on the North Property.

Photo #10
Date: May 21, 2014
Description: MW-21 Low-Flow Sampling on the North Property.

Photo #11
Date: March 19, 2014
Description: MW-22 Low-Flow Sampling on the North Property.

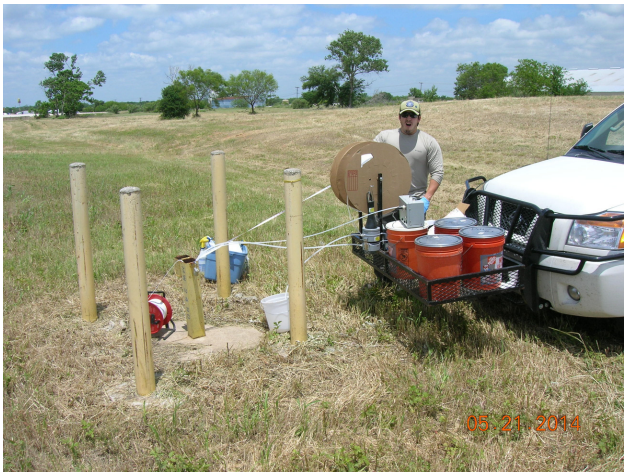


Photo #12
Date: May 21, 2014
Description: MW-24-90 Low-Flow Sampling on the Central Property.

Photo #13
Date: May 21, 2014
Description: MW-27-90 Sampling by Bailer on the Central Property.

Photo #14
Date: May 21, 2014
Description: MW-28-90 Low-Flow Sampling on the Central Property.

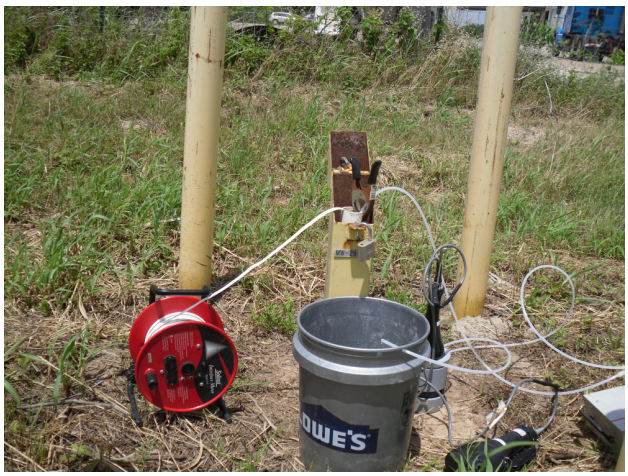


Photo #15
Date: May 21, 2014
Description: MW-29-90 Low-Flow Sampling on the Central Property.

Photo #16
Date: May 21, 2014
Description: MW-30-90 Sampling by Bailer on the Central Property.

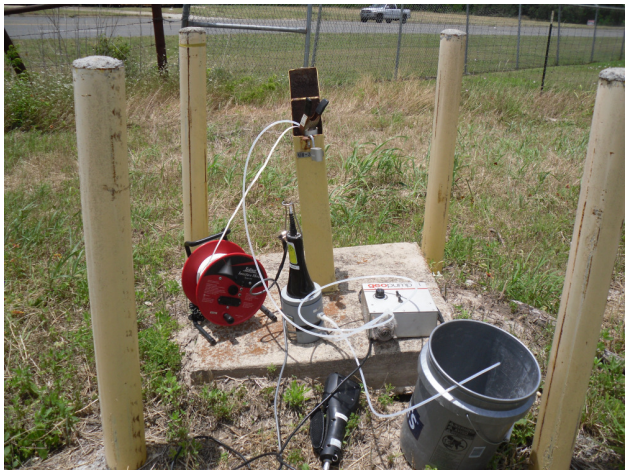


Photo #17
Date: May 21, 2014
Description: MW-33-90 low-flow sampling on the Central Property.

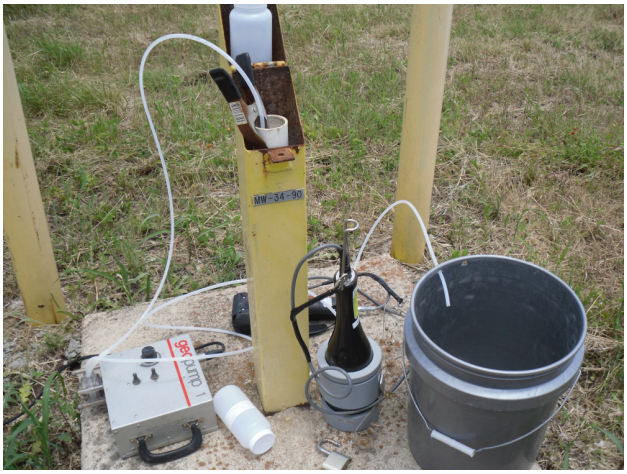


Photo #18
Date May 21, 2014
Description: MW-34-90 Low-Flow Sampling on the Central Property.

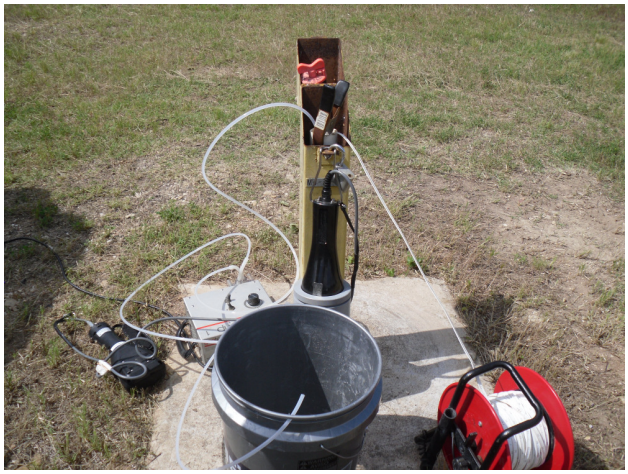


Photo #19
Date: May 21, 2014
Description: MW-35-90 Low-Flow Sampling on the North Property.

Photo #20
Date: May 21, 2014
Description: MW-37-90 Low-Flow Sampling on the North Property.

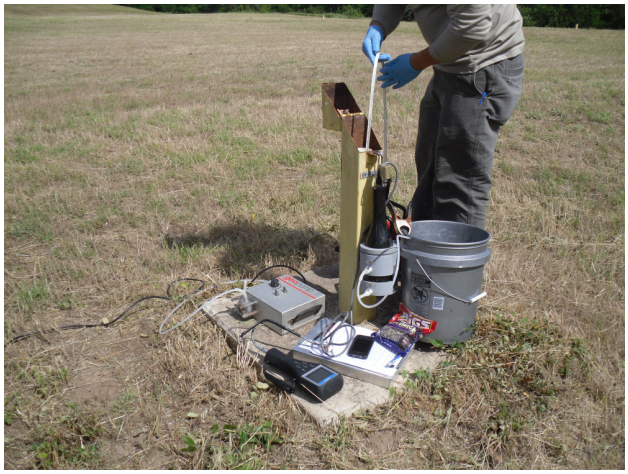


Photo #21 Date: May 21, 2014 Description: MW-38-90 Low-Flow Sampling on the North Property.	Photo #22 Date: July 22, 2014 Description: Unknown monitor well discovered on eastern portion of Central Property.

Appendix 2

Data Review and Validation Memoranda and Laboratory Analytical Reports

DATA USABILITY SUMMARY
FOR
ROCKWOOL INDUSTRIES, INC.

FEDERAL SUPERFUND SITE

1741 TAYLORS VALLEY ROAD

BELTON, BELL COUNTY, TEXAS

JANUARY 21–23, 2014

MARCH 19, 2014

MAY 21, 2014

JULY 22, 2014

SAMPLING EVENTS

Prepared by:

Nancy K. Toole
ECS Environmental Chemistry Services
PO Box 79782
Houston, Texas

Under Subcontract to:

Daniel B. Stephens & Associates, Inc.
4030 W. Braker Road, Suite 325
Austin, TX 78759
(512) 821-2765

August 9, 2014

TABLE OF CONTENTS

SECTION **PAGE**

APPENDICES

Appendix A Qualified TRRP Reports

Appendix B NELAP Laboratory Certificates

1. NELAC/TLAP LABORATORY ACCREDITATION CERTIFICATION STATEMENT

Daniel B. Stephens & Associates, Inc. (DB Stephens) certifies that at the time the laboratory data were generated for the project, DHL Analytical ((DHL) was NELAC accredited under the Texas Laboratory Accreditation Program (TLAP) for the matrices, analytes, and parameters of analysis requested on the chain-of-custody form.

The sampling events covered by this DUS include the following:

- January 21-23, 2014
- March 19, 2014
- May 21, 2014
- July 22, 2014

These sampling events include data packages 1401180, 1403158, 1405261, and 1407278. The qualified TRRP Reports are presented in Appendix A. A copy of the DHL NELAP accreditation certificates that cover the dates of analysis for the sampling events are presented in Appendix B.

2. INTRODUCTION

This Data Usability Summary (DUS) contains the results of the data review conducted by ECS Environmental Chemistry Services (ECS) for samples collected from the Rockwool Industries Federal Superfund Site in Belton, Bell County, Texas. The sampling events covered by this DUS include the following:

- January 21-23, 2014
- March 19, 2014
- May 21, 2014
- July 22, 2014

DHL located in Round Rock, Texas analyzed the samples for the parameters listed in Table 2-1. Field quality control samples are identified in Table 2-2. The independent data review covered by this DUS includes the following three levels of review:

Laboratory Data Package Review – an evaluation of sample-specific criteria specified in Section 3 of this DUS.

Laboratory Review Checklist Review - an evaluation of the laboratory performance criteria specified in Section 4 of this DUS.

Data Validation – an evaluation of raw data to confirm the accuracy of calculation, data transcription, and instrument performance as specified in Section 5 of this DUS.

The results of the first level of review are covered for each analytical method in Section 6 of this report.

The results of the second and third levels of review are covered for each analytical method in Section 7 of this report. Validation included a review of the supporting data, recalculation of results from raw data, and checks for transcription errors on 10% of the data.

The result of the data review process is the qualified data presented in Appendix A. The data were qualified using the qualifiers and bias codes presented in Tables D-2 and Table D-3 of the Texas

Commission on Environmental Quality (TCEQ) Quality Assurance Project Plan (QAPP) for the Federal Superfund Program (Revision 10.0, QTRAK#13-462).

Table 2-1
Rockwool Industries
Belton, Bell County, Texas
Sample Summary

SDG	LAB SAMPLE ID	FIELD SAMPLE ID	DATE COLL.	MATRIX	PARAMETER
1401180	1401180-01	MW-22	01/21/2014	Aqueous	MET
	1401180-02	MW-20	01/21/2014	Aqueous	MET
	1401180-03	MW-37-90	01/21/2014	Aqueous	MET
	1401180-04	MW-21	01/21/2014	Aqueous	MET
	1401180-05	MW-38-90	01/21/2014	Aqueous	MET
	1401180-06	MW-35-90	01/21/2014	Aqueous	MET
	1401180-07	DUP-1	01/21/2014	Aqueous	MET
	1401180-08	ER-1	01/21/2014	Aqueous	MET
	1401180-09	MW-11	01/22/2014	Aqueous	MET
	1401180-10	MW-14	01/22/2014	Aqueous	MET
	1401180-11	MW-10	01/22/2014	Aqueous	MET
	1401180-12	MW-7	01/22/2014	Aqueous	MET
	1401180-13	MW-19	01/22/2014	Aqueous	MET
	1401180-14	MW-30-90	01/22/2014	Aqueous	MET
	1401180-15	MW-24-90	01/22/2014	Aqueous	MET
	1401180-16	MW-18	01/22/2014	Aqueous	MET
	1401180-17	MW-29-90	01/22/2014	Aqueous	MET
	1401180-18	ER-2	01/22/2014	Aqueous	MET
	1401180-19	MW-27-90	01/23/2014	Aqueous	MET
	1401180-20	MW-17	01/23/2014	Aqueous	MET
	1401180-21	MW-28-90	01/23/2014	Aqueous	MET
	1401180-22	MW-33-90	01/23/2014	Aqueous	MET
	1401180-23	MW-34-90	01/23/2014	Aqueous	MET
	1401180-24	MW-9	01/23/2014	Aqueous	MET
	1401180-25	ER-3	01/23/2014	Aqueous	MET
	1401180-26	DUP-2	01/23/2014	Aqueous	MET
1403158	1403158-01	MW-20	03/19/2014	Aqueous	MET
	1403158-02	MW-11	03/19/2014	Aqueous	MET
	1403158-03	MW-14	03/19/2014	Aqueous	MET
	1403158-04	MW-7	03/19/2014	Aqueous	MET
	1403158-05	MW-19	03/19/2014	Aqueous	MET
	1403158-06	MW-24-90	03/19/2014	Aqueous	MET
	1403158-07	MW-18	03/19/2014	Aqueous	MET
	1403158-08	MW-27-90	03/19/2014	Aqueous	MET
	1403158-09	MW-28-90	03/19/2014	Aqueous	MET

SDG	LAB SAMPLE ID	FIELD SAMPLE ID	DATE COLL.	MATRIX	PARAMETER
	1403158-10	MW-9	03/19/2014	Aqueous	MET
	1403158-11	ER-1	03/19/2014	Aqueous	MET
	1403158-12	MW-22	03/19/2014	Aqueous	MET
	1403158-13	MW-37-90	03/19/2014	Aqueous	MET
	1403158-14	MW-38-90	03/19/2014	Aqueous	MET
	1403158-15	MW-35-90	03/19/2014	Aqueous	MET
	1403158-16	MW-10	03/19/2014	Aqueous	MET
	1403158-17	MW-21	03/19/2014	Aqueous	MET
	1403158-18	MW-30-90	03/19/2014	Aqueous	MET
	1403158-19	MW-29-90	03/19/2014	Aqueous	MET
	1403158-20	MW-17	03/19/2014	Aqueous	MET
	1403158-21	MW-33-90	03/19/2014	Aqueous	MET
	1403158-22	MW-34-90	03/19/2014	Aqueous	MET
	1403158-23	DUP-1	03/19/2014	Aqueous	MET
	1403158-24	DUP-2	03/19/2014	Aqueous	MET
1405261	1405261-01	MW-22	05/21/2014	Aqueous	MET
	1405261-02	MW-37-90	05/21/2014	Aqueous	MET
	1405261-03	MW-21	05/21/2014	Aqueous	MET
	1405261-04	MW-38-90	05/21/2014	Aqueous	MET
	1405261-05	MW-35-90	05/21/2014	Aqueous	MET
	1405261-06	MW-10	05/21/2014	Aqueous	MET
	1405261-07	MW-30-90	05/21/2014	Aqueous	MET
	1405261-08	MW-29-90	05/21/2014	Aqueous	MET
	1405261-09	MW-17	05/21/2014	Aqueous	MET
	1405261-10	MW-33-90	05/21/2014	Aqueous	MET
	1405261-11	MW-34-90	05/21/2014	Aqueous	MET
	1405261-12	DUP-1	05/21/2014	Aqueous	MET
	1405261-13	DUP-2	05/21/2014	Aqueous	MET
	1405261-14	ER-1	05/21/2014	Aqueous	MET
	1405261-15	MW-20	05/21/2014	Aqueous	MET
	1405261-16	MW-11	05/21/2014	Aqueous	MET
	1405261-17	MW-14	05/21/2014	Aqueous	MET
	1405261-18	MW-7	05/21/2014	Aqueous	MET
	1405261-19	MW-19	05/21/2014	Aqueous	MET
	1405261-20	MW-24-90	05/21/2014	Aqueous	MET
	1405261-21	MW-18	05/21/2014	Aqueous	MET
	1405261-22	MW-27-90	05/21/2014	Aqueous	MET
	1405261-23	MW-28-90	05/21/2014	Aqueous	MET
	1405261-24	MW-9	05/21/2014	Aqueous	MET
1407278	1407278-01	MW-22	07/22/2014	Aqueous	MET

SDG	LAB SAMPLE ID	FIELD SAMPLE ID	DATE COLL.	MATRIX	PARAMETER
	1407278-02	MW-37-90	07/22/2014	Aqueous	MET
	1407278-03	MW-21	07/22/2014	Aqueous	MET
	1407278-04	MW-38-90	07/22/2014	Aqueous	MET
	1407278-05	MW-35-90	07/22/2014	Aqueous	MET
	1407278-06	MW-10	07/22/2014	Aqueous	MET
	1407278-07	MW-30-90	07/22/2014	Aqueous	MET
	1407278-08	MW-29-90	07/22/2014	Aqueous	MET
	1407278-09	MW-17	07/22/2014	Aqueous	MET
	1407278-10	MW-33-90	07/22/2014	Aqueous	MET
	1407278-11	MW-34-90	07/22/2014	Aqueous	MET
	1407278-12	DUP-1	07/22/2014	Aqueous	MET
	1407278-13	DUP-2	07/22/2014	Aqueous	MET
	1407278-14	ER-1	07/22/2014	Aqueous	MET
	1407278-15	MW-20	07/22/2014	Aqueous	MET
	1407278-16	MW-11	07/22/2014	Aqueous	MET
	1407278-17	MW-14	07/22/2014	Aqueous	MET
	1407278-18	MW-7	07/22/2014	Aqueous	MET
	1407278-19	MW-19	07/22/2014	Aqueous	MET
	1407278-20	MW-24-90	07/22/2014	Aqueous	MET
	1407278-21	MW-18	07/22/2014	Aqueous	MET
	1407278-22	MW-27-90	07/22/2014	Aqueous	MET
	1407278-23	MW-28-90	07/22/2014	Aqueous	MET
	1407278-24	MW-9	07/22/2014	Aqueous	MET

MET= antimony, arsenic, and lead by USEPA Method 6020A

Table 2-2
Rockwool Industries
Belton, Bell County, Texas
Field Quality Control Sample Summary

SDG	LAB SAMPLE ID	FIELD SAMPLE ID	FIELD QC SAMPLE TYPE	ASSOCIATED SAMPLES
1401180	1401180-04	MW-21	MS/MSD	1401180-04
	1401180-07	DUP-1	Field Duplicate	1401180-06
	1401180-08	ER-1	Equipment Blank	1401180-01-07
	1401180-18	ER-2	Equipment Blank	1401180-09-17
	1401180-25	ER-3	Equipment Blank	1401180-19-24, 26
	1401180-26	DUP-2	Field Duplicate	1401180-23
1403158	1403158-04	MW-7	MS/MSD	1403158-04
	1403158-11	ER-1	Equipment Blank	1403158-01-10, 12-
	1403158-23	DUP-1	Field Duplicate	1403158-15
	1403158-24	DUP-2	Field Duplicate	1403158-22
1405261	1405261-03	MW-21	MS/MSD	1405261-03
	1405261-12	DUP-1	Field Duplicate	1405261-05
	1405261-13	DUP-2	Field Duplicate	1405261-11
	1405261-14	ER-1	Equipment Blank	1405261-01-13, 15-24
	1405261-24	MW-9	MS/MSD	1405261-24
1407278	1407278-03	MW-21	MS/MSD	1407278-03
	1407278-12	DUP-1	Field Duplicate	1407278-05
	1407278-13	DUP-2	Field Duplicate	1407278-11
	1407278-14	ER-1	Equipment Blank	1407278-01-13, 14-24

3. DATA REVIEW CRITERIA

The laboratory data package review covers a review of the sample-specific items for the TCEQ QAPP criteria listed below.

METHOD	SAMPLE-SPECIFIC REVIEW ITEM	EVALUATION CRITERIA
Metals/ 6020A	Holding Time/Preservation Requirements	Table B2-1
	Blanks	Table B5.1.15 or 16-3
	Laboratory Control Sample	Table D-1
	Laboratory Spike Sample	Table D-1
	Laboratory Duplicate Sample	Table D-1
	Field Duplicate	Section D.2.1.2.2.1.6

The independent review of these items is covered in Section 6 of this DUS.

4. LABORATORY REVIEW CHECKLIST REVIEW CRITERIA

The Laboratory Review Checklist (LRC) review covers a review of the laboratory performance items for the TCEQ QAPP evaluation criteria listed below.

METHOD	LAB PERFORMANCE REVIEW ITEM	EVALUATION CRITERIA
Metals/ 6020A	Instrument Performance	Table B5.1.16-3
	Initial Calibration	Table B5.1.16-3
	Initial and Continuing Calibration Verification	Table B5.1.16-3
	Internal Standard	Table B5.1.16-3
	Interference Check Standard	Section D.2.1.2.1.5
	Serial Dilution	Section D.2.1.2.1.6
	Post Digestion Spike	Section D.2.1.2.1.7
	Method of Standard Addition	Section D.2.1.2.1.8

Results not meeting the evaluation criteria were documented in the LRCs and ERs presented in the data package in Appendix A. The independent review of these items is covered in Section 7.0 of this DUS.

5. DATA VALIDATION CRITERIA

Data validation was performed on the following project analytical batch:

- Metal Batch 61543

Data validation was performed on 10% of the project analytical batches. Laboratory Quality Control Summary sheets were reviewed to confirm that QC problems were properly reported on the Laboratory Control Checklist (LRC). Raw data were checked for calculation and transcription errors. The independent data validation is covered in Section 6.0 of this DUS.

6. DATA REVIEW RESULTS

6.1 METALS

For metals data, the following items are reviewed in this section:

- Holding Time/Preservation Requirements;
- Blanks;
- Laboratory Control Sample;
- Matrix Spike Sample;
- Laboratory Duplicate Sample; and
- Field Duplicates.

The following sections specify the reasons for the data validation qualifiers that are presented in Appendix A.

6.1.1 Holding Time/Preservation Requirements

The maximum holding time from date of collection to date of preparation for metals in aqueous matrix samples is 180 days. The maximum holding time from date of preparation to date of analysis for metals in aqueous matrix samples is 180 days. These holding times were met for all of the samples in this data set. None of the metal data were qualified based on holding times.

6.1.2 Blanks

All associated blanks were free of any reportable concentration for all reported analytes above SDLs with the following exception:

SDG	BLANK ID	ANALYTE	CONC.	QUALIFIED ASSOCIATED SAMPLES
1405261	ER-1	Antimony	0.000875 mg/l	1405261-01, 02, 07, 15, 18, 19, 21

If a metal is detected in a blank and is also detected in an associated sample in a concentration less than 5 times the concentration found in the blank, the sample data are qualified as not detected for that compound. Samples that had compounds qualified as NOT detected with a "U" qualifier based on these criteria are listed in the previous table.

6.1.3 Laboratory Control Sample (LCS)

The LCS review criteria for metal data are as follows:

ACCURACY (%R)	PRECISION (RPD)
70%-130%	30%

One LCS was analyzed with each analytical batch. These criteria were met for all the samples in this data set. None of the metal data were qualified based on LCS data.

6.1.4 Matrix Spike Sample

The MS/MSD review criteria for metal data are as follows:

ACCURACY (%R)	PRECISION (RPD)
70%-130%	30%

One MS/MSD set was analyzed with every analytical batch. These criteria were met for all the MS/MSD in this data set. None of the metal data were qualified based on MS/MSD data.

6.1.5 Duplicate Sample

The duplicate sample review criteria for metal data when both the sample and duplicate concentrations are greater than 5 times the MQL are as follows:

PRECISION (RPD)
30%

One duplicate sample was analyzed with every analytical batch. These criteria were met for all the samples in this data set that had concentrations for the original and duplicate greater than 5 times the MQL. None of the metal data were qualified based on duplicate data.

6.1.6 Field Duplicates

For aqueous matrix samples, when both the original and duplicate result are greater than 5 times the method quantitation limit (MQL), the Relative Percent Differences (RPD) was equal to or less than 30%. For aqueous matrix samples, when one or both of the original and duplicate results are less than 5 times the MQL, the results agree within 2 times the greater SDL. The results of this evaluation of all detected results are shown in the following table:

SDG	FIELD DUP ID	ANALYTE	ORIGINAL RESULT	DUPLICATE RESULT	QC RESULT	CRITERIA
1401180	1401180-06/17	Antimony	0.604	0.594	RPD:2%	<=30%
		Arsenic	0.0803	0.0809	RPD:1%	<=30%
		Lead	0.000511	0.000764	DIF:0.000253	<=0.000600
	1401180-23/26	Antimony	0.306	0.300	RPD:2%	<=30%
		Arsenic	0.415	0.410	RPD:1%	<=30%
1403158	1403158-15/23	Antimony	0.166	0.149	RPD:11%	<=30%
		Arsenic	0.0558	0.0446	RPD:22%	<=30%
		Lead	**0.0479**	**0.0268**	**RPD:56%**	**<=30%**
	1403158-22/24	Antimony	0.305	0.316	RPD:4%	<=30%
		Arsenic	0.447	0.463	RPD:4%	<=30%
		Lead	0.000894	0.00114	DIF:0.000246	<=0.000600
1405261	1405261-05/12	Antimony	0.985	0.985	RPD:0%	<=30%
		Arsenic	0.0943	0.0922	RPD:2%	<=30%
		Lead	0.000506	0.000525	DIF:0.000019	<=0.000600
	1405261-11/13	Antimony	0.324	0.329	RPD:2%	<=30%
		Arsenic	0.383	0.377	RPD:2%	<=30%
1407278	1407278-05/12	Antimony	0.524	0.516	RPD:2%	<=30%
		Arsenic	0.0826	0.0835	RPD:1%	<=30%
		Lead	0.00157	0.00169	DIF:0.000120	<=0.000600
	1407278-11/13	Antimony	0.314	0.318	RPD:1%	<=30%
		Arsenic	0.433	0.424	RPD:2%	<=30%

The result listed in bold type in the table above were qualified based on field duplicate data as estimated with JI-FD qualifiers.

7. DATA VALIDATION RESULTS

The laboratory used for this project appears to have an adequate QA system in place that is designed to ensure the accurate reporting of analytical results generated. All instances in which the analytical QC results fell outside the acceptance criteria were fully and correctly reported in the associated Laboratory Review Checklists.

The following subsections contain a review of the supporting data using the criteria specified in Section 4.

7.1 ICP/MS METALS

For ICP/MS metal data, the following items are reviewed in this section:

- Instrument Performance;
- Initial Calibration;
- Initial and Continuing Calibration Verification;
- Internal Standard;
- Interference Check Sample;
- Serial Dilution, Post Digestion Spike, Method of Standard Addition;

The following sections specify the reasons for the data validation qualifiers that are presented in Appendix A.

7.1.1 Instrument Performance

Instrument performance checks were performed at the proper frequency and met the criteria specified in the Table B5.1.16-3 of the TCEQ QAPP. None of the ICP/MS metal data were qualified based on instrument performance.

7.1.2 Initial Calibration

Initial Calibrations were performed daily prior to sample analysis. None of the ICP/MS metal data were qualified based on initial calibration data.

7.1.3 Initial and Continuing Calibration Verification

Initial Calibration Verifications (ICV) were conducted daily after the initial calibration. Continuing calibration verifications (CCV) were conducted before the first sample run, after every 10 samples, and at the end of the analytical sequence. Initial and Continuing Calibrations Verification were within 10% of the expected value. None of the ICP metal data were qualified based on ICV or CCV data.

7.1.4 Internal Standards

Internal standards were added to all ICP/MS samples and quality control samples associated with this report. Internal standard intensities were within 30% to 120% of the intensity of the internal standard in the initial calibration standard. These criteria were met for all the samples in this data set. None of the ICP/MS data were qualified based on Internal Standard data.

7.1.5 Interference Check Solution

All of the Interference Check Solutions (ICS) were conducted at the beginning of an analytical run or once during a 12-hour period, whichever was more frequent. All ICS were within 20% of the true value. None of the ICP metal data were qualified based on ICS data.

7.1.6 Serial Dilution, Post Digestion Spike, Method of Standard Additions

The serial dilution, post digestion spike, and Method of Standard Additions (MSA) were performed, if needed, at the proper frequency and met the requirements set forth in Sections D.2.1.2.1.6, D.2.1.2.1.7, and D.2.1.2.1.8 of the QAPP with the following excpetions:

SDG	SAMPLE	ANALYTE	SD %D/ PDS %R	CON. LIMIT	ASSOC. SAMPLES
1407278	1407278-03	Lead	SD: 11%	<=10%	1407278-01-13

The associated samples listed above qualified as follows:

	Detected results	Non-Detected Results
SD: % D greater than 10%	JI-DL	-
PDS: %R greater than 130%	JH-PDS	-
PDS: %R less than 70% but greater than 30%	JL-PDS	UJL-PDS
PDS: %R less than 30%	JL-PDS	R-PDS

8. OVERALL ASSESSMENT DATA USABILITY RELATIVE TO PROJECT OBJECTIVES

The data covered by this report are acceptable for use in meeting project objectives specified in the Field Sampling Plan for this project as qualified based on the following data quality assurance objectives:

Accuracy is defined as the degree of agreement between a measurement in a quality control sample and an accepted reference or true value. Accuracy is measured as the percent recovery of an analyte as measured through analysis of Laboratory Control Samples (LCS) and Matrix Spike/ Matrix Spike Duplicates (MS/MSD). Since 100% of the LCS and MS/MSD samples were within the applicable acceptance ranges, the overall level of accuracy is considered acceptable

Precision is defined as the agreement between a set of replicate measurements without knowledge of a true value. Precision is measured by the analysis of laboratory and field duplicates. Since 96% of the field and laboratory duplicate results were within applicable acceptance ranges, the overall level of precision is considered acceptable.

Completeness is measured as the ratio of the number of valid analytical results to the total number of analytical results requested. The completeness criteria of 95% for aqueous samples were met. The overall completeness of 100% is considered acceptable.

Representativeness, as measured by comparing the results obtained for the field duplicate pairs, use of sampling procedures contained in the QAPP, and relevant SOPs, is considered acceptable.

9. DATA USABILITY RELATIVE TO PROJECT OBJECTIVES

The overall objective of operations and maintenance phase of the project are to perform long-term monitoring and operations and maintenance (O&M) activities, in the form of semi-annual groundwater monitoring and other maintenance tasks, as required in support of the ROD for the Site.

9.1 EVALUATION OF SAMPLE DETECTION LIMITS AND METHOD QUANTITATION LIMITS RELATIVE TO THE ACTION LEVELS

Sample Detection Limits (SDLs) are the method detection limits for an analyte adjusted for dilutions and sample size. The maximum SDL for the chemicals of concern with a non-detect result were all below the Protective Concentration Limits (PCLs) specified by D. B. Stephens for the COC as shown below:

TARGET COC	**MAXIMUM SDL (mg/l)**	**Level of Required Performance (LORP) (mg/l)**
Antimony	0.000800	0.006
Arsenic	0.00200	0.010
Lead (inorganic)	0.000300	0.005

9.2 POTENTIAL EFFECTS OF BIASES AND IMPRECISION ON USABILITY OF THE DATA

Metals Precision – The following metal did not meet field duplicate review criteria:

SDG	FIELD DUP ID	ANALYTE	ORIGINAL RESULT (mg/l)	DUPLICATE RESULT (mg/l)	LORP (mg/l)	CODE
1403158	1403158-15/23	Lead	0.0479	0.0268	0.005	1

Code 1: The interpretation of the original result, as being above the LORP, is not impacted by the field duplicate imprecision because both results are above the LORP.

None of the interpretations of the metal data were impacted by field duplicate results.

The following metal did not meet serial dilution review criteria:

SDG	FIELD DUP ID	ANALYTE	SERIAL DILUTION RESULT	ASSOC. DETECTED SAMPLE CONC. (mg/l)	LORP (mg/l)	CODE
1407278	1407278-03	Lead	SD: 11%	1407278-01: 0.000573	0.005	1
				1407278-03: 0.00161	0.005	1
				1407278-04: 0.000703	0.005	1
				1407278-05: 0.00157	0.005	1
				1407278-07: 0.0107	0.005	2
				1407278-08: 0.00235	0.005	1
				1407278-12: 0.00169	0.005	1

Code 1: The interpretation of the original result, as being below the LORP, is not impacted by the serial dilution result imprecision because application of the serial dilution result to the reported result for this sample would not result in a concentration above the LORP.

Code 2: The interpretation of the original result, as being above the LORP, is not impacted by the serial dilution result because application of the serial dilution result to the reported result for this sample would not result in a concentration below the LORP.

None of the interpretations of the metal data were impacted by serial dilution results.

10. POTENTIAL ADDITIONAL USES AND LIMITATIONS

Other potential data uses have not been identified for this data.

11. CORRECTIVE ACTIONS AND WORKPLAN DEVIATIONS

In order to obtain usable matrix spike/matrix spike duplicate (MS/MSD) QC data to evaluate potential sample matrix interferences, the following corrective action is documented to the field team:

For future sampling events, DBS&A must ensure that a project-specific sample is designated as the MS/MSD sample on the chain-of-custody form, as specified in Element B.5.4.2 of the Federal Superfund Program QAPP and in the TCEQ Superfund Program SOP No. 6.5 (Collection of QA/QC Samples). Additionally, the field team will ensure that sufficient sample volume is collected for the laboratory to perform the MS/MSD QC sample analysis on this project-specific sample. This was done for the fiscal year 2014 sampling events at this site.

12. REJECTED DATA AND PROJECT CONSEQUENCES

None of the results associated with this project were rejected based on this data review.

13. CONCLUSIONS

The chemical data covered by this Data Usability Report are considered usable for meeting the project objectives with the qualifications presented in this report.

APPENDIX A

QUALIFIED TRRP REPORTS

Table A-1
Data Qualifier Definitions

Qualifier	Definitions
U	The analyte was analyzed for but was not detected above the sample quantitation limit (SDL). The associated value presented in the tables is the method quantitation limit. The sample quantitation limit is not provided in the tables however, the SDL may be found in the analytical laboratory report.
J	The associated value is an estimated quantity.
UJ	The material was analyzed for but was not detected above the reported sample quantitation limit. The associated value is an estimate and may be inaccurate or imprecise.
N	Tentatively identified; The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	Tentatively identified, reported concentration is estimated: The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents the analyte's approximate concentration.
R	Rejected: The data are unusable. (Note: The presence or absence of the analyte cannot be confirmed.)
X1	The laboratory is not NELAC accredited under the Texas Laboratory Accreditation Program for this analyte in this matrix analyzed by this method. The laboratory is an on-site or in-house laboratory, defined in 30 TAC 25, and is accredited or periodically inspected at least every 3 years by TCEQ.
X2	The laboratory is not NELAC accredited under the Texas Laboratory Accreditation Program for this analyte in this matrix analyzed by this method. The laboratory is an on-site or in-house laboratory, defined in 30 TAC 25, is located outside of Texas, and is accredited or periodically inspected by that state.
X3	The laboratory is not NELAC accredited under the Texas Laboratory Accreditation Program for this analyte in this matrix analyzed by this method. The laboratory is an on-site or in-house laboratory, defined in 30 TAC 25, is inspected at least every 3 years by the TCEQ, and the work is performed for another company with a unit located on the same site as the laboratory.
X4	The laboratory is not NELAC accredited under the Texas Laboratory Accreditation Program for this analyte in this matrix analyzed by this method. The laboratory is an on-site or in-house laboratory, defined in 30 TAC 25, is inspected at least every 3 years by the TCEQ, and the work is performed without compensation for a governmental agency or a charitable organization.

Qualifier	Definitions
X5	The laboratory is not NELAC accredited under the Texas Laboratory Accreditation Program for this analyte in this matrix analyzed by this method. The laboratory is accredited under federal law, including certification by the USEPA to provide these data for decisions related to the Safe Drinking Water Act.
X6	The laboratory is not NELAC accredited under the Texas Laboratory Accreditation Program for this analyte in this matrix analyzed by this method. The laboratory provides these data necessary for emergency response activities and the required analytical data are not available from a laboratory accredited under the Texas Laboratory Accreditation Program.
X7	The laboratory is not NELAC accredited under the Texas Laboratory Accreditation Program for this analyte in this matrix analyzed by this method. The TCEQ does not offer accreditation for this analyte, in this matrix, analyzed by this method.
X8	The laboratory is not NELAC accredited under the Texas Laboratory Accreditation Program for this analyte in this matrix analyzed by this method. The TCEQ does offers accreditation for this analyte, in this matrix, analyzed by this method, but the laboratory is not accredited for this analyte in this matrix by this method. The analyte result is validated and reported as part of a suite of analytes for the method.
X9	The laboratory is not NELAC accredited under the Texas Laboratory Accreditation Program for this analyte in this matrix analyzed by this method. The analyte result was generated prior to July 1, 2008.

Table A-2
Data Validation Qualifier Codes

Qualifier Code	Data Quality Condition Resulting In Assigned Qualification
General Use	
FB	Field blank contamination
FD	Field duplicate evaluation criteria not met
HT	Holding time requirement was not met
LCS	Laboratory control sample evaluation criteria not met
MB	Method blank or preparation blank contamination
RB	Rinsate blank contamination
MQL	Sample quantitation limit exceeds decision criteria (for nondetected
Inorganic Methods	
CCB	Continuing calibration blank contamination
CCV	Continuing calibration verification evaluation criteria not met
D	Laboratory duplicate precision evaluation criteria not met
DL	Serial dilution results did not meet evaluation criteria
ICS	Interference check sample evaluation criteria not met
ICV	Initial calibration verification evaluation criteria not met
MS	Matrix spike recovery outside acceptance range
PDS	Post-digestion spike recovery outside acceptance range
MSA	Method of standard additions correlation coefficient <0.995
PB	Preparation Blank
Organic Methods	
CCAL	Continuing calibration evaluation criteria not met
ICAL	Initial calibration evaluation criteria not met
ID	Target compound identification criteria not met
IS	Internal standard evaluation criteria not met
MS/SD	Matrix spike/matrix spike duplicate accuracy and/or precision criteria
SUR	Surrogate recovery outside acceptance range
TUNE	Instrument performance (tuning) criteria not met
P	Detected concentration difference between the primary and secondary
Bias Codes	
H	Bias in sample result likely to be high
I	Bias in sample result is indeterminate
L	Bias in sample result likely to be low

DHL ANALYTICAL

February 04, 2014

Paul Kirby
D. B. Stephens & Assoc, Inc.
4030 W Braker #325
Austin, Texas 78759
TEL: (512) 821-2765
FAX

Order No.: 1401180

RE: Rockwool TCEQ Belton, TX

Dear Paul Kirby:

DHL Analytical, Inc. received 26 sample(s) on 1/24/2014 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-13-11

ACCREDITED IN ACCORDANCE WITH nelac

Table of Contents

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 62151

CHAIN-OF-CUSTODY

CLIENT: DBSA
ADDRESS: 4030 West Braker Lane Ste. 325 Austin, TX
PHONE: 512-821-2765 FAX/E-MAIL: wgamblin@dbstephens.com
DATA REPORTED TO: William Gamblin
ADDITIONAL REPORT COPIES TO: —

DATE: 1/23/14 bc 1/21/14 to 1/23/14 PAGE 1 OF 2
PO #: — — DHL WORK ORDER #: 019458 1401180
PROJECT LOCATION OR NAME: Rockwool - TCEQ Belton, TX
CLENT PROJECT #: ES14, AIRO, 12, 0000 COLLECTOR: B. CAMACHO

Authorize 5% surcharge for TRRP Report? ☐ Yes ☒ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☐ MTBE ☐ [METHOD 8021]	TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐	GRO [METHOD 8015] ☐ DRO [METHOD 8105] ☐	VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐	SVOC 8270 ☐ DRO PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐	8081 PEST ☐ 608 PEST/PCB ☐ 8270 PEST ☐	8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐	8321 HERB ☐ 8330 EXPL ☐ PERCHLORATE ☐	METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐	RCRA ☐ TX11 ☐ ___ ☐	PH ☐ HEX CHROM ☐ ALKALINITY ☐	CHLORIDE ☐ ANIONS ___ ☐	TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐	TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	FIELD NOTES
MW-22	01	1-21-14	1345	W	P, 250mL	1		X		X												X					TCEQ list
MW-20	02	1-21-14	1440	W	P, 250mL	1		X		X												X					
MW-37-90	03	1-21-14	1536	W	P, 250mL	1		X		X												X					
MW-21	04	1-21-14	1640	W	P, 250mL	1		X		X												X					
MW-38-90	05	1-21-14	1740	W	P, 250mL	1		X		X												X					
MW-35-90	06	1-21-14	1840	W	P, 250mL	1		X		X												X					
MW-21 MS	04	1-21-14	1640	W	P, 250mL	1		X		X												X					
MW-21 MSD	04	1-21-14	1640	W	P, 250mL	1		X		X												X					
Dup-1	07	1-21-14	—	W	P, 250mL	1		X		X												X					
ER-1	08	1-21-14	1900	W	P, 250mL	1		X		X												X					
MW-11	09	1-22-14	0950	W	P, 250mL	1		X		X												X					
MW-14	10	1-22-14	1125	W	P, 250mL	1		X		X												X					
MW-10	11	1-22-14	1210	W	P, 250mL	1		X		X												X					
MW-7	12	1-22-14	1340	W	P, 250mL	1		X		X												X					
MW-19	13	1-22-14	1440	W	P, 250mL	1		X		X												X					
TOTAL						15																					

RELINQUISHED BY: (Signature) CAMACHO, BEN DATE/TIME 1/23/14 bc RECEIVED BY: (Signature) 1/24/14 1100 AM
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return 3

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ ___

LABORATORY USE ONLY:
RECEIVING TEMP: 1.0 THERM #: 74
CUSTODY SEALS: ☐ BROKEN ☐ INTACT ☒ NOT USED
☐ CARRIER BILL #: ___
☐ APC DELIVERY
☐ HAND DELIVERED

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E Mail: login@dhlanalytical.com

№ 62152

CHAIN-OF-CUSTODY

CLIENT: DBSA
ADDRESS: 4030 West Braker Lane Ste 325, Austin TX
PHONE: 512-821-2765 FAX/E-MAIL: WGamblin@dbstephens.com
DATA REPORTED TO: William GAMBLIN
ADDITIONAL REPORT COPIES TO: —

DATE: 1-22-14 Bc 1/21/14 to 1/23/14 PAGE 2 OF 2
PO #: — — DHL WORK ORDER #: 019458 1401190
PROJECT LOCATION OR NAME: Rockwool TCEQ Belton, TX
CLENT PROJECT #: ES14.AiAo.12 COLLECTOR: B. CAMACHO

Authorize 5% surcharge for TRRP Report? ☐ Yes ☒ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO3	H2SO4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
MW-30-90	14	1-22-14	1550	W	P, 250mL	1		X		X		X	TCEQ List
MW-24-90	15	1-22-14	1640	W	P, 250mL	1		X		X		X	
MW-18	16	1-22-14	1710	W	P, 250mL	1		X		X		X	
MW-29-90	17	1-22-14	1440	W	P, 250mL	1		X		X		X	
ER-2	18	1-22-14	1900	W	P, 250mL	1		X		X		X	
MW-27-90	19	1-23-14	0940	W	P, 250mL	1		X		X		X	
MW-17	20	1-23-14	1040	W	P, 250mL	1		X		X		X	
MW-28-90	21	1-23-14	1140	W	P, 250mL	1		X		X		X	
MW-33-90	22	1-23-14	1240	W	P, 250mL	1		X		X		X	
MW-34-90	23	1-23-14	1340	W	P, 250mL	1		X		X		X	
MW-9	24	1-23-14	1440	W	P, 250mL	1		X		X		X	
ER-3	25	1-23-14	1500	W	P, 250mL	1		X		X		X	
Dup-2	26	1-23-14	—	W	P, 250mL	1		X		X		X	
			1-23-14										
TOTAL						13							

ANALYSES: BTEX ☐ MTBE ☐ (METHOD 8021) TPH 1005 ☐ TPH 1006 ☐ HOLD 1005 ☐ GRO (METHOD 8015) ☐ DRO (METHOD 8105) ☐ VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH'S SVOC 625 ☐ 8081 PEST ☐ 608 PEST/PCB ☐ 8082 PCB ☐ 8270 PEST ☐ 8270 G-P PEST ☐ 608 PEST ☐ 8082 PCB ☐ 8270 PCB ☐ 8321 HERB ☐ 8330 EXPL ☐ PERCHLORATE ☐ METALS 6010 ☐ METALS 200.8 ☐ DISS. METALS ☐ RCRA ☐ TX11 ☐ PHG HEX CHROM ☐ ALKALINITY ☐ CHLORIDE ☐ ANIONS ☐ TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ TCLP-METALS ☐ RCRA 8 ☐ TX11 ☐ Pb ☐ RCI ☐ TOX ☐ FLASHPOINT ☐ TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

RELINQUISHED BY: (Signature) CAMACHO, BEN — DATE/TIME 1/24/14 — RECEIVED BY: (Signature) — 11 AM
RELINQUISHED BY: (Signature) — DATE/TIME — RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) — DATE/TIME — RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

4

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ ____

LABORATORY USE ONLY:
RECEIVING TEMP: 1.5 THERM #: 76
CUSTODY SEALS: ☐ BROKEN ☐ INTACT ☒ NOT USED
☐ CARRIER BILL #: ____
☐ APC DELIVERY
☒ HAND DELIVERED

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name D. B. Stephens & Assoc, Inc. | Date Received: 1/24/2014

Work Order Number 1401180 | Received by JB

Checklist completed by: _____ 1/24/2014 (Signature / Date) | Reviewed by JD 1/24/2014 (Initials / Date)

Carrier name Hand Delivered

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☑	No ☐	Not Present ☐
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	1.0 °C
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 7179
	Adjusted? no		Checked by
Water - pH>9 (S) or ph>12 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted?		Checked by

Any No response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

Page 1 of 1

DHL Analytical, Inc.
Laboratory Review Checklist: Reportable Data

Project Name: Rockwool TCEQ Belton, TX	**Date:** 2/4/2014
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1401180
Prep Batch Number(s): See Prep Dates Report	**Run Batch:** See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-Custody (C-O-C)					
R1	OI	1) Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				R1-01
		2) Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and Quality Control (QC) Identification**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test Reports**					
		1) Were all samples prepared and analyzed within holding times?	X				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		3) Were calculations checked by a peer or supervisor?	X				
		4) Were all analyte identifications checked by a peer or supervisor?	X				
		5) Were sample detection limits reported for all analytes not detected?	X				
		6) Were all results for soil and sediment samples reported on a dry weight basis?			X		
		7) Were % moisture (or solids) reported for all soil and sediment samples?			X		
		8) Were bulk soils/solids samples for volatile analysis extracted with methanol per EPA Method 5035?			X		
		9) If required for the project, TICs reported?			X		
R4	O	**Surrogate Recovery Data**					
		1) Were surrogates added prior to extraction?			X		
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		1) Were appropriate type(s) of blanks analyzed?	X				
		2) Were blanks analyzed at the appropriate frequency?	X				
		3) Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		4) Were blank concentrations < MQL?	X				
R6	OI	**Laboratory Control Samples (LCS):**					
		1) Were all COCs included in the LCS?	X				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		3) Were LCSs analyzed at the required frequency?	X				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		6) Was the LCSD RPD within QC limits (if applicable)?	X				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Data**					
		1) Were the project/method specified analytes included in the MS and MSD?	X				
		2) Were MS/MSD analyzed at the appropriate frequency?	X				
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		4) Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?			X		
		2) Were analytical duplicates analyzed at the appropriate frequency?			X		
		3) Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	X				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		3) Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		3) Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

DHL Analytical, Inc.

Laboratory Review Checklist (continued): Supporting Data

Project Name: Rockwool TCEQ Belton, TX	**Date:** 2/4/2014
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1401180

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within QC limits?	X				
		2) Were percent RSDs or correlation coefficient criteria met?	X				
		3) Was the number of standards recommended in the method used for all analytes?	X				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		5) Are ICAL data available for all instruments used?	X				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and Continuing calibration Verification (ICCV and CCV) and Continuing Calibration blank (CCB):**					
		1) Was the CCV analyzed at the method-required frequency?	X				
		2) Were percent differences for each analyte within the method-required QC limits?	X				
		3) Was the ICAL curve verified for each analyte?	X				
		4) Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	**Mass Spectral Tuning:**					
		1) Was the appropriate compound for the method used for tuning?	X				
		2) Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal Standards (IS):**					
		1) Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw Data (NELAC Section 5.5.10)**					
		1) Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		2) Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual Column Confirmation**					
		1) Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively Identified Compounds (TICs):**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) Results:**					
		1) Were percent recoveries within method QC limits?	X				
S9	I	**Serial Dilutions, Post Digestion Spikes, and Method of Standard Additions**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	**Method Detection Limit (MDL) Studies**					
		1) Was a MDL study performed for each reported analyte?	X				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency Test Reports:**					
		1) Was the lab's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards Documentation**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/Analyte Identification Procedures**					
		1) Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5 – Appendix C?	X				
		2) Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/Validation Documentation for Methods** (NELAC Chapter 5)					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory Standard Operating Procedures (SOPs):**					
		1) Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Data Package Signature Page – RG-366/TRRP-13

This data package consists of:

This signature page, the laboratory review checklist, and the following reportable data:

- R1 Field chain-of-custody documentation;
- R2 Sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5,
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- R4 Surrogate recovery data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - c) The laboratory's LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a) The amount of analyte measured in the duplicate,
  - b) The calculated RPD, and
  - c) The laboratory's QC limits for analytical duplicates.
- R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;
- R10 Other problems or anomalies.

The Exception Report for every "No" or "Not Reviewed (NR)" item in Laboratory Review checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information or data affecting the quality of the data has been knowingly withheld.

This laboratory was last inspected by TCEQ on May 6-10, 2013. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

John DuPont – General Manager

Scott Schroeder – Technical Director

Signature

02/04/14

Date

DHL Analytical, Inc. **Date:** *04-Feb-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool TCEQ Belton, TX
Lab Order: 1401180

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Method SW6020A - Metals Analysis

Exception Report R1-01

The samples were received and log-in performed on 1/24/2014. A total of 26 samples were received and analyzed. The samples arrived in good condition and were properly packaged.

DHL Analytical, Inc. Date: *04-Feb-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool TCEQ Belton, TX
Lab Order: 1401180

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1401180-01	MW-22		01/21/14 01:45 PM	1/24/2014
1401180-02	MW-20		01/21/14 02:40 PM	1/24/2014
1401180-03	MW-37-90		01/21/14 03:30 PM	1/24/2014
1401180-04	MW-21		01/21/14 04:40 PM	1/24/2014
1401180-05	MW-38-90		01/21/14 05:40 PM	1/24/2014
1401180-06	MW-35-90		01/21/14 06:40 PM	1/24/2014
1401180-07	DUP-1		01/21/14	1/24/2014
1401180-08	ER-1		01/21/14 07:00 PM	1/24/2014
1401180-09	MW-11		01/22/14 09:50 AM	1/24/2014
1401180-10	MW-14		01/22/14 11:25 AM	1/24/2014
1401180-11	MW-10		01/22/14 12:10 PM	1/24/2014
1401180-12	MW-7		01/22/14 01:40 PM	1/24/2014
1401180-13	MW-19		01/22/14 02:40 PM	1/24/2014
1401180-14	MW-30-90		01/22/14 03:50 PM	1/24/2014
1401180-15	MW-24-90		01/22/14 04:40 PM	1/24/2014
1401180-16	MW-18		01/22/14 05:40 PM	1/24/2014
1401180-17	MW-29-90		01/22/14 06:40 PM	1/24/2014
1401180-18	ER-2		01/22/14 07:00 PM	1/24/2014
1401180-19	MW-27-90		01/23/14 09:40 AM	1/24/2014
1401180-20	MW-17		01/23/14 10:40 AM	1/24/2014
1401180-21	MW-28-90		01/23/14 11:40 AM	1/24/2014
1401180-22	MW-33-90		01/23/14 12:40 PM	1/24/2014
1401180-23	MW-34-90		01/23/14 01:40 PM	1/24/2014
1401180-24	MW-9		01/23/14 02:40 PM	1/24/2014
1401180-25	ER-3		01/23/14 03:00 PM	1/24/2014
1401180-26	DUP-2		01/23/14	1/24/2014

Lab Order: 1401180
Client: D. B. Stephens & Assoc, Inc.
Project: Rockwool TCEQ Belton, TX

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1401180-01A	MW-22	01/21/14 01:45 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/28/14 12:07 PM	61543
1401180-02A	MW-20	01/21/14 02:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/28/14 12:07 PM	61543
1401180-03A	MW-37-90	01/21/14 03:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/28/14 12:07 PM	61543
1401180-04A	MW-21	01/21/14 04:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-05A	MW-38-90	01/21/14 05:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/28/14 12:07 PM	61543
	MW-38-90	01/21/14 05:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/28/14 12:07 PM	61543
1401180-06A	MW-35-90	01/21/14 06:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/28/14 12:07 PM	61543
	MW-35-90	01/21/14 06:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/28/14 12:07 PM	61543
1401180-07A	DUP-1	01/21/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/28/14 12:07 PM	61543
	DUP-1	01/21/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/28/14 12:07 PM	61543
1401180-08A	ER-1	01/21/14 07:00 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	01/28/14 12:07 PM	61543
1401180-09A	MW-11	01/22/14 09:50 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/28/14 12:07 PM	61543
1401180-10A	MW-14	01/22/14 11:25 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/28/14 12:07 PM	61543
1401180-11A	MW-10	01/22/14 12:10 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-12A	MW-7	01/22/14 01:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-13A	MW-19	01/22/14 02:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-14A	MW-30-90	01/22/14 03:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-15A	MW-24-90	01/22/14 04:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-16A	MW-18	01/22/14 05:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-17A	MW-29-90	01/22/14 06:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-18A	ER-2	01/22/14 07:00 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-19A	MW-27-90	01/23/14 09:40 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-20A	MW-17	01/23/14 10:40 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-21A	MW-28-90	01/23/14 11:40 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-22A	MW-33-90	01/23/14 12:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-23A	MW-34-90	01/23/14 01:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-24A	MW-9	01/23/14 02:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-25A	ER-3	01/23/14 03:00 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551

Lab Order: 1401180
Client: D. B. Stephens & Assoc, Inc.
Project: Rockwool TCEQ Belton, TX

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1401180-26A	DUP-2	01/23/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551

Lab Order: 1401180
Client: D. B. Stephens & Assoc, Inc.
Project: Rockwool TCEQ Belton, TX

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1401180-01A	MW-22	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61543	1	01/29/14 03:34 PM	ICP-MS3_140129A
1401180-02A	MW-20	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61543	1	01/29/14 03:40 PM	ICP-MS3_140129A
1401180-03A	MW-37-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61543	1	01/29/14 05:02 PM	ICP-MS3_140129A
1401180-04A	MW-21	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 09:20 PM	ICP-MS3_140129A
1401180-05A	MW-38-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61543	1	01/29/14 05:08 PM	ICP-MS3_140129A
	MW-38-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61543	5	01/30/14 12:11 PM	ICP-MS3_140130A
1401180-06A	MW-35-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61543	1	01/29/14 05:14 PM	ICP-MS3_140129A
	MW-35-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61543	5	01/30/14 12:17 PM	ICP-MS3_140130A
1401180-07A	DUP-1	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61543	1	01/29/14 05:20 PM	ICP-MS3_140129A
	DUP-1	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61543	5	01/30/14 12:23 PM	ICP-MS3_140130A
1401180-08A	ER-1	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	61543	1	01/29/14 05:26 PM	ICP-MS3_140129A
1401180-09A	MW-11	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61543	1	01/29/14 05:32 PM	ICP-MS3_140129A
1401180-10A	MW-14	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61543	1	01/29/14 05:38 PM	ICP-MS3_140129A
1401180-11A	MW-10	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 09:45 PM	ICP-MS3_140129A
1401180-12A	MW-7	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 09:51 PM	ICP-MS3_140129A
1401180-13A	MW-19	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 09:57 PM	ICP-MS3_140129A
1401180-14A	MW-30-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 10:03 PM	ICP-MS3_140129A
1401180-15A	MW-24-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 10:09 PM	ICP-MS3_140129A
1401180-16A	MW-18	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 10:15 PM	ICP-MS3_140129A
1401180-17A	MW-29-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 10:21 PM	ICP-MS3_140129A
1401180-18A	ER-2	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 09:32 PM	ICP-MS3_140129A
1401180-19A	MW-27-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 11:39 PM	ICP-MS3_140129A
1401180-20A	MW-17	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 11:45 PM	ICP-MS3_140129A
1401180-21A	MW-28-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 11:52 PM	ICP-MS3_140129A
1401180-22A	MW-33-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 11:58 PM	ICP-MS3_140129A
1401180-23A	MW-34-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/30/14 12:04 AM	ICP-MS3_140129A
1401180-24A	MW-9	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/30/14 12:10 AM	ICP-MS3_140129A
1401180-25A	ER-3	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 09:39 PM	ICP-MS3_140129A

Lab Order: 1401180
Client: D. B. Stephens & Assoc, Inc.
Project: Rockwool TCEQ Belton, TX

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1401180-26A	DUP-2	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/30/14 12:16 AM	ICP-MS3_140129A

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-22
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-01
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/21/14 01:45 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	01/29/14 03:34 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	01/29/14 03:34 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/29/14 03:34 PM
IS: Bismuth	110	0	70-200		%REC	1	01/29/14 03:34 PM
IS: Germanium	117	0	70-200		%REC	1	01/29/14 03:34 PM
IS: Indium	111	0	70-200		%REC	1	01/29/14 03:34 PM

NKT 2-10-14

Qualifiers:
- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-20
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-02
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/21/14 02:40 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	**0.000879**	0.000800	0.00250	J	mg/L	1	01/29/14 03:40 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	01/29/14 03:40 PM
Lead	**0.000554**	0.000300	0.00100	J	mg/L	1	01/29/14 03:40 PM
IS: Bismuth	100	0	70-200		%REC	1	01/29/14 03:40 PM
IS: Germanium	107	0	70-200		%REC	1	01/29/14 03:40 PM
IS: Indium	103	0	70-200		%REC	1	01/29/14 03:40 PM

NKT 2-10-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-37-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-03
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/21/14 03:30 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	**0.00121**	0.000800	0.00250	J	mg/L	1	01/29/14 05:02 PM
Arsenic	**0.0437**	0.00200	0.00500		mg/L	1	01/29/14 05:02 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/29/14 05:02 PM
IS: Bismuth	99.4	0	70-200		%REC	1	01/29/14 05:02 PM
IS: Germanium	109	0	70-200		%REC	1	01/29/14 05:02 PM
IS: Indium	101	0	70-200		%REC	1	01/29/14 05:02 PM

NKT 2-10-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-21
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-04
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/21/14 04:40 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	**0.336**	0.000800	0.00250		mg/L	1	01/29/14 09:20 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	01/29/14 09:20 PM
Lead	**0.000335**	0.000300	0.00100	J	mg/L	1	01/29/14 09:20 PM
IS: Bismuth	101	0	70-200		%REC	1	01/29/14 09:20 PM
IS: Germanium	113	0	70-200		%REC	1	01/29/14 09:20 PM
IS: Indium	104	0	70-200		%REC	1	01/29/14 09:20 PM

MK 2-10-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-38-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-05
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/21/14 05:40 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.802	0.00400	0.0125		mg/L	5	01/30/14 12:11 PM
Arsenic	0.00412	0.00200	0.00500	J	mg/L	1	01/29/14 05:08 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/29/14 05:08 PM
IS: Bismuth	100	0	70-200		%REC	1	01/29/14 05:08 PM
IS: Germanium	102	0	70-200		%REC	1	01/29/14 05:08 PM
IS: Indium	99.5	0	70-200		%REC	5	01/30/14 12:11 PM

NLC 2-10-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-35-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-06
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/21/14 06:40 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.604	0.00400	0.0125		mg/L	5	01/30/14 12:17 PM
Arsenic	0.0803	0.00200	0.00500		mg/L	1	01/29/14 05:14 PM
Lead	0.000511	0.000300	0.00100	J	mg/L	1	01/29/14 05:14 PM
IS: Bismuth	95.4	0	70-200		%REC	1	01/29/14 05:14 PM
IS: Germanium	109	0	70-200		%REC	1	01/29/14 05:14 PM
IS: Indium	99.6	0	70-200		%REC	5	01/30/14 12:17 PM

2-10-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	DUP-1
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-07
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/21/14
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	**0.594**	0.00400	0.0125		mg/L	5	01/30/14 12:23 PM
Arsenic	**0.0809**	0.00200	0.00500		mg/L	1	01/29/14 05:20 PM
Lead	**0.000764**	0.000300	0.00100	J	mg/L	1	01/29/14 05:20 PM
IS: Bismuth	99.0	0	70-200		%REC	1	01/29/14 05:20 PM
IS: Germanium	107	0	70-200		%REC	1	01/29/14 05:20 PM
IS: Indium	97.2	0	70-200		%REC	5	01/30/14 12:23 PM

MK
2-10-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	ER-1
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-08
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/21/14 07:00 PM
Lab Order:	1401180	**Matrix:**	EQUIP BLANK

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	01/29/14 05:26 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	01/29/14 05:26 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/29/14 05:26 PM
IS: Bismuth	111	0	70-200		%REC	1	01/29/14 05:26 PM
IS: Germanium	120	0	70-200		%REC	1	01/29/14 05:26 PM
IS: Indium	110	0	70-200		%REC	1	01/29/14 05:26 PM

2.10.14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-11
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-09
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/22/14 09:50 AM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	01/29/14 05:32 PM
Arsenic	**0.00228**	0.00200	0.00500	J	mg/L	1	01/29/14 05:32 PM
Lead	**0.00362**	0.000300	0.00100		mg/L	1	01/29/14 05:32 PM
IS: Bismuth	105	0	70-200		%REC	1	01/29/14 05:32 PM
IS: Germanium	113	0	70-200		%REC	1	01/29/14 05:32 PM
IS: Indium	107	0	70-200		%REC	1	01/29/14 05:32 PM

NK 2-10-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-14
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-10
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/22/14 11:25 AM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	01/29/14 05:38 PM
Arsenic	**0.00224**	0.00200	0.00500	J	mg/L	1	01/29/14 05:38 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/29/14 05:38 PM
IS: Bismuth	101	0	70-200		%REC	1	01/29/14 05:38 PM
IS: Germanium	116	0	70-200		%REC	1	01/29/14 05:38 PM
IS: Indium	103	0	70-200		%REC	1	01/29/14 05:38 PM

MK
2-10-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-10
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-11
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/22/14 12:10 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	01/29/14 09:45 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	01/29/14 09:45 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/29/14 09:45 PM
IS: Bismuth	102	0	70-200		%REC	1	01/29/14 09:45 PM
IS: Germanium	113	0	70-200		%REC	1	01/29/14 09:45 PM
IS: Indium	105	0	70-200		%REC	1	01/29/14 09:45 PM

MK 2.10.14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-7
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-12
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/22/14 01:40 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00116	0.000800	0.00250	J	mg/L	1	01/29/14 09:51 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	01/29/14 09:51 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/29/14 09:51 PM
IS: Bismuth	96.8	0	70-200		%REC	1	01/29/14 09:51 PM
IS: Germanium	110	0	70-200		%REC	1	01/29/14 09:51 PM
IS: Indium	100	0	70-200		%REC	1	01/29/14 09:51 PM

MK 2-10-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-19
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-13
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/22/14 02:40 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00141	0.000800	0.00250	J	mg/L	1	01/29/14 09:57 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	01/29/14 09:57 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/29/14 09:57 PM
IS: Bismuth	96.9	0	70-200		%REC	1	01/29/14 09:57 PM
IS: Germanium	107	0	70-200		%REC	1	01/29/14 09:57 PM
IS: Indium	101	0	70-200		%REC	1	01/29/14 09:57 PM

2-10-14

Qualifiers:
ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-30-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-14
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/22/14 03:50 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	**0.00128**	0.000800	0.00250	J	mg/L	1	01/29/14 10:03 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	01/29/14 10:03 PM
Lead	**0.00150**	0.000300	0.00100		mg/L	1	01/29/14 10:03 PM
IS: Bismuth	90.1	0	70-200		%REC	1	01/29/14 10:03 PM
IS: Germanium	104	0	70-200		%REC	1	01/29/14 10:03 PM
IS: Indium	93.8	0	70-200		%REC	1	01/29/14 10:03 PM

2-10-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-24-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-15
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/22/14 04:40 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	**0.0128**	0.000800	0.00250		mg/L	1	01/29/14 10:09 PM
Arsenic	**0.0124**	0.00200	0.00500		mg/L	1	01/29/14 10:09 PM
Lead	**0.00132**	0.000300	0.00100		mg/L	1	01/29/14 10:09 PM
IS: Bismuth	90.0	0	70-200		%REC	1	01/29/14 10:09 PM
IS: Germanium	98.4	0	70-200		%REC	1	01/29/14 10:09 PM
IS: Indium	92.7	0	70-200		%REC	1	01/29/14 10:09 PM

NET
2-10-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-18
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-16
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/22/14 05:40 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.000809	0.000800	0.00250	J	mg/L	1	01/29/14 10:15 PM
Arsenic	0.00265	0.00200	0.00500	J	mg/L	1	01/29/14 10:15 PM
Lead	0.000877	0.000300	0.00100	J	mg/L	1	01/29/14 10:15 PM
IS: Bismuth	88.0	0	70-200		%REC	1	01/29/14 10:15 PM
IS: Germanium	97.5	0	70-200		%REC	1	01/29/14 10:15 PM
IS: Indium	94.1	0	70-200		%REC	1	01/29/14 10:15 PM

MK 2-10-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-29-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-17
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/22/14 06:40 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0169	0.000800	0.00250		mg/L	1	01/29/14 10:21 PM
Arsenic	0.00441	0.00200	0.00500	J	mg/L	1	01/29/14 10:21 PM
Lead	0.00159	0.000300	0.00100		mg/L	1	01/29/14 10:21 PM
IS: Bismuth	92.5	0	70-200		%REC	1	01/29/14 10:21 PM
IS: Germanium	98.7	0	70-200		%REC	1	01/29/14 10:21 PM
IS: Indium	95.2	0	70-200		%REC	1	01/29/14 10:21 PM

NKT 2-10-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	ER-2
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-18
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/22/14 07:00 PM
Lab Order:	1401180	**Matrix:**	EQUIP BLANK

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	01/29/14 09:32 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	01/29/14 09:32 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/29/14 09:32 PM
IS: Bismuth	108	0	70-200		%REC	1	01/29/14 09:32 PM
IS: Germanium	114	0	70-200		%REC	1	01/29/14 09:32 PM
IS: Indium	109	0	70-200		%REC	1	01/29/14 09:32 PM

MK 2-10-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-27-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-19
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/23/14 09:40 AM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0554	0.000800	0.00250		mg/L	1	01/29/14 11:39 PM
Arsenic	0.00219	0.00200	0.00500	J	mg/L	1	01/29/14 11:39 PM
Lead	0.000746	0.000300	0.00100	J	mg/L	1	01/29/14 11:39 PM
IS: Bismuth	97.8	0	70-200		%REC	1	01/29/14 11:39 PM
IS: Germanium	102	0	70-200		%REC	1	01/29/14 11:39 PM
IS: Indium	103	0	70-200		%REC	1	01/29/14 11:39 PM

MK 1
2-10-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-17
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-20
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/23/14 10:40 AM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	**0.0256**	0.000800	0.00250		mg/L	1	01/29/14 11:45 PM
Arsenic	**0.00472**	0.00200	0.00500	J	mg/L	1	01/29/14 11:45 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/29/14 11:45 PM
IS: Bismuth	101	0	70-200		%REC	1	01/29/14 11:45 PM
IS: Germanium	107	0	70-200		%REC	1	01/29/14 11:45 PM
IS: Indium	105	0	70-200		%REC	1	01/29/14 11:45 PM

NKT 2-10-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-28-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-21
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/23/14 11:40 AM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	**0.0412**	0.000800	0.00250		mg/L	1	01/29/14 11:52 PM
Arsenic	**0.125**	0.00200	0.00500		mg/L	1	01/29/14 11:52 PM
Lead	**0.000501**	0.000300	0.00100	J	mg/L	1	01/29/14 11:52 PM
IS: Bismuth	93.5	0	70-200		%REC	1	01/29/14 11:52 PM
IS: Germanium	110	0	70-200		%REC	1	01/29/14 11:52 PM
IS: Indium	97.9	0	70-200		%REC	1	01/29/14 11:52 PM

MK 2-10-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-33-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-22
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/23/14 12:40 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	**0.132**	0.000800	0.00250		mg/L	1	01/29/14 11:58 PM
Arsenic	**0.0321**	0.00200	0.00500		mg/L	1	01/29/14 11:58 PM
Lead	**0.000768**	0.000300	0.00100	J	mg/L	1	01/29/14 11:58 PM
IS: Bismuth	91.5	0	70-200		%REC	1	01/29/14 11:58 PM
IS: Germanium	99.9	0	70-200		%REC	1	01/29/14 11:58 PM
IS: Indium	94.9	0	70-200		%REC	1	01/29/14 11:58 PM

MK 2-10-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-34-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-23
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/23/14 01:40 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.306	0.000800	0.00250		mg/L	1	01/30/14 12:04 AM
Arsenic	0.415	0.00200	0.00500		mg/L	1	01/30/14 12:04 AM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/30/14 12:04 AM
IS: Bismuth	93.3	0	70-200		%REC	1	01/30/14 12:04 AM
IS: Germanium	109	0	70-200		%REC	1	01/30/14 12:04 AM
IS: Indium	97.3	0	70-200		%REC	1	01/30/14 12:04 AM

MK 2-10-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-9
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-24
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/23/14 02:40 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	**0.250**	0.000800	0.00250		mg/L	1	01/30/14 12:10 AM
Arsenic	**0.122**	0.00200	0.00500		mg/L	1	01/30/14 12:10 AM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/30/14 12:10 AM
IS: Bismuth	93.8	0	70-200		%REC	1	01/30/14 12:10 AM
IS: Germanium	101	0	70-200		%REC	1	01/30/14 12:10 AM
IS: Indium	97.6	0	70-200		%REC	1	01/30/14 12:10 AM

MK 2-10-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	ER-3
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-25
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/23/14 03:00 PM
Lab Order:	1401180	**Matrix:**	EQUIP BLANK

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	01/29/14 09:39 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	01/29/14 09:39 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/29/14 09:39 PM
IS: Bismuth	106	0	70-200		%REC	1	01/29/14 09:39 PM
IS: Germanium	114	0	70-200		%REC	1	01/29/14 09:39 PM
IS: Indium	107	0	70-200		%REC	1	01/29/14 09:39 PM

MKT 2-10-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	DUP-2
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-26
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/23/14
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	**0.300**	0.000800	0.00250		mg/L	1	01/30/14 12:16 AM
Arsenic	**0.410**	0.00200	0.00500		mg/L	1	01/30/14 12:16 AM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/30/14 12:16 AM
IS: Bismuth	94.8	0	70-200		%REC	1	01/30/14 12:16 AM
IS: Germanium	102	0	70-200		%REC	1	01/30/14 12:16 AM
IS: Indium	98.3	0	70-200		%REC	1	01/30/14 12:16 AM

NLC 2-10-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1401180
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140103A

Sample ID	DCS-58199-1	Batch ID:	58199	TestNo:	SW6020A	Units:	mg/L
SampType:	DCS	Run ID:	ICP-MS3_140103A	Analysis Date:	1/3/2014 12:11:00 PM	Prep Date:	7/2/2013

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.000921	0.00250	0.00100	0	92.1	80	120	0	0	
Arsenic	0.000970	0.00500	0.00100	0	97.0	80	120	0	0	
Lead	0.000976	0.00100	0.00100	0	97.6	80	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1401180
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140129A

The QC data in batch 61543 applies to the following samples: 1401180-01A, 1401180-02A, 1401180-03A, 1401180-05A, 1401180-06A, 1401180-07A, 1401180-08A, 1401180-09A, 1401180-10A

Sample ID MB-61543	Batch ID: 61543	TestNo: SW6020A	Units: mg/L
SampType: MBLK	Run ID: ICP-MS3_140129A	Analysis Date: 1/29/2014 2:16:00 PM	Prep Date: 1/28/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Lead	<0.000300	0.00100								
IS: Bismuth	0.200		0.200		103	70	200			

Sample ID LCS-61543	Batch ID: 61543	TestNo: SW6020A	Units: mg/L
SampType: LCS	Run ID: ICP-MS3_140129A	Analysis Date: 1/29/2014 2:22:00 PM	Prep Date: 1/28/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.203	0.00250	0.200	0	102	80	120			
Arsenic	0.217	0.00500	0.200	0	109	80	120			
Lead	0.205	0.00100	0.200	0	102	80	120			
IS: Bismuth	0.200		0.200		98.3	70	200			

Sample ID LCSD-61543	Batch ID: 61543	TestNo: SW6020A	Units: mg/L
SampType: LCSD	Run ID: ICP-MS3_140129A	Analysis Date: 1/29/2014 2:28:00 PM	Prep Date: 1/28/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.209	0.00250	0.200	0	105	80	120	3.01	15	
Arsenic	0.218	0.00500	0.200	0	109	80	120	0.597	15	
Lead	0.207	0.00100	0.200	0	104	80	120	1.21	15	
IS: Bismuth	0.200		0.200		97.1	70	200	0	0	

Sample ID 1401171-08B SD	Batch ID: 61543	TestNo: SW6020A	Units: mg/L
SampType: SD	Run ID: ICP-MS3_140129A	Analysis Date: 1/29/2014 2:46:00 PM	Prep Date: 1/28/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qua
Antimony	<0.00400	0.0125	0	0				0	10	
Arsenic	<0.0100	0.0250	0	0				0	10	
Lead	<0.00150	0.00500	0	0.000338				0	10	
IS: Bismuth	1.00		0.200		107	70	200	0	0	
IS: Germanium	1.00		0.200		113	70	200	0	0	
IS: Indium	1.00		0.200		105	70	200	0	0	

Sample ID 1401171-08B PDS	Batch ID: 61543	TestNo: SW6020A	Units: mg/L
SampType: PDS	Run ID: ICP-MS3_140129A	Analysis Date: 1/29/2014 3:47:00 PM	Prep Date: 1/28/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.182	0.00250	0.200	0	90.9	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1401180
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140129A

Sample ID 1401171-08B PDS	Batch ID: 61543	TestNo: SW6020A	Units: mg/L
SampType: PDS	Run ID: ICP-MS3_140129A	Analysis Date: 1/29/2014 3:47:00 PM	Prep Date: 1/28/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.203	0.00500	0.200	0	102	80	120			
Lead	0.199	0.00100	0.200	0.000338	99.2	80	120			
IS: Bismuth	0.200		0.200		109	70	200			

Sample ID 1401171-08B MS	Batch ID: 61543	TestNo: SW6020A	Units: mg/L
SampType: MS	Run ID: ICP-MS3_140129A	Analysis Date: 1/29/2014 3:52:00 PM	Prep Date: 1/28/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.203	0.00250	0.200	0	101	80	120			
Arsenic	0.210	0.00500	0.200	0	105	80	120			
Lead	0.204	0.00100	0.200	0.000338	102	80	120			
IS: Bismuth	0.200		0.200		111	70	200			

Sample ID 1401171-08B MSD	Batch ID: 61543	TestNo: SW6020A	Units: mg/L
SampType: MSD	Run ID: ICP-MS3_140129A	Analysis Date: 1/29/2014 3:58:00 PM	Prep Date: 1/28/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.200	0.00250	0.200	0	99.8	80	120	1.54	15	
Arsenic	0.211	0.00500	0.200	0	106	80	120	0.427	15	
Lead	0.206	0.00100	0.200	0.000338	103	80	120	0.928	15	
IS: Bismuth	0.200		0.200		109	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1401180
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140129A

The QC data in batch 61551 applies to the following samples: 1401180-04A, 1401180-11A, 1401180-12A, 1401180-13A, 1401180-14A, 1401180-15A, 1401180-16A, 1401180-17A, 1401180-18A, 1401180-19A, 1401180-20A, 1401180-21A, 1401180-22A, 1401180-23A, 1401180-24A, 1401180-25A, 1401180-26A

Sample ID **MB-61551** Batch ID: **61551** TestNo: **SW6020A** Units: **mg/L**
SampType: **MBLK** Run ID: **ICP-MS3_140129A** Analysis Date: **1/29/2014 8:56:00 PM** Prep Date: **1/29/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Lead	<0.000300	0.00100								
IS: Bismuth	0.200		0.200		107	70	200			
IS: Germanium	0.200		0.200		116	70	200			
IS: Indium	0.200		0.200		109	70	200			

Sample ID **LCS-61551** Batch ID: **61551** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCS** Run ID: **ICP-MS3_140129A** Analysis Date: **1/29/2014 9:02:00 PM** Prep Date: **1/29/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.204	0.00250	0.200	0	102	80	120			
Arsenic	0.215	0.00500	0.200	0	108	80	120			
Lead	0.205	0.00100	0.200	0	103	80	120			
IS: Bismuth	0.200		0.200		104	70	200			
IS: Germanium	0.200		0.200		114	70	200			
IS: Indium	0.200		0.200		106	70	200			

Sample ID **LCSD-61551** Batch ID: **61551** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS3_140129A** Analysis Date: **1/29/2014 9:08:00 PM** Prep Date: **1/29/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.205	0.00250	0.200	0	103	80	120	0.489	15	
Arsenic	0.215	0.00500	0.200	0	108	80	120	0.046	15	
Lead	0.199	0.00100	0.200	0	99.5	80	120	3.02	15	
IS: Bismuth	0.200		0.200		101	70	200	0	0	
IS: Germanium	0.200		0.200		110	70	200	0	0	
IS: Indium	0.200		0.200		102	70	200	0	0	

Sample ID **1401180-04A SD** Batch ID: **61551** TestNo: **SW6020A** Units: **mg/L**
SampType: **SD** Run ID: **ICP-MS3_140129A** Analysis Date: **1/29/2014 9:26:00 PM** Prep Date: **1/29/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qua
Antimony	0.334	0.0125	0	0.336				0.776	10	
Arsenic	<0.0100	0.0250	0	0				0	10	
Lead	<0.00150	0.00500	0	0.000335				0	10	
IS: Bismuth	1.00		0.200		105	70	200	0	0	
IS: Germanium	1.00		0.200		113	70	200	0	0	
IS: Indium	1.00		0.200		106	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1401180
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140129A

Sample ID 1401180-04A PDS	Batch ID: 61551	TestNo: SW6020A	Units: mg/L
SampType: PDS	Run ID: ICP-MS3_140129A	Analysis Date: 1/29/2014 10:27:00 PM	Prep Date: 1/29/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.539	0.00250	0.200	0.336	101	80	120			
Arsenic	0.220	0.00500	0.200	0	110	80	120			
Lead	0.205	0.00100	0.200	0.000335	103	80	120			
IS: Bismuth	0.200		0.200		89.3	70	200			
IS: Germanium	0.200		0.200		98.4	70	200			
IS: Indium	0.200		0.200		91.3	70	200			

Sample ID 1401180-04A MS	Batch ID: 61551	TestNo: SW6020A	Units: mg/L
SampType: MS	Run ID: ICP-MS3_140129A	Analysis Date: 1/29/2014 10:33:00 PM	Prep Date: 1/29/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.564	0.00250	0.200	0.336	114	80	120			
Arsenic	0.224	0.00500	0.200	0	112	80	120			
Lead	0.205	0.00100	0.200	0.000335	102	80	120			
IS: Bismuth	0.200		0.200		93.4	70	200			
IS: Germanium	0.200		0.200		99.6	70	200			
IS: Indium	0.200		0.200		95.6	70	200			

Sample ID 1401180-04A MSD	Batch ID: 61551	TestNo: SW6020A	Units: mg/L
SampType: MSD	Run ID: ICP-MS3_140129A	Analysis Date: 1/29/2014 10:39:00 PM	Prep Date: 1/29/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.563	0.00250	0.200	0.336	113	80	120	0.177	15	
Arsenic	0.225	0.00500	0.200	0	113	80	120	0.847	15	
Lead	0.208	0.00100	0.200	0.000335	104	80	120	1.11	15	
IS: Bismuth	0.200		0.200		94.0	70	200	0	0	
IS: Germanium	0.200		0.200		101	70	200	0	0	
IS: Indium	0.200		0.200		96.3	70	200	0	0	

Qualifiers:				
	B	Analyte detected in the associated Method Blank	DF	Dilution Factor
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
	RL	Reporting Limit	S	Spike Recovery outside control limits
	J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1401180
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140129A

Sample ID ICV1-140129	Batch ID: R70907	TestNo: SW6020A	Units: mg/L
SampType: ICV	Run ID: ICP-MS3_140129A	Analysis Date: 1/29/2014 1:46:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0966	0.00250	0.100	0	96.6	90	110			
Arsenic	0.102	0.00500	0.100	0	102	90	110			
Lead	0.0976	0.00100	0.100	0	97.6	90	110			
IS: Bismuth	0.200		0.200		101	70	200			

Sample ID ILCVL-140129	Batch ID: R70907	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS3_140129A	Analysis Date: 1/29/2014 2:04:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00209	0.00250	0.00200	0	105	70	130			
Arsenic	0.00556	0.00500	0.00500	0	111	70	130			
Lead	0.00103	0.00100	0.00100	0	103	70	130			
IS: Bismuth	0.200		0.200		102	70	200			

Sample ID CCV1-140129	Batch ID: R70907	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS3_140129A	Analysis Date: 1/29/2014 4:13:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.206	0.00500	0.200	0	103	90	110			
Lead	0.199	0.00100	0.200	0	99.4	90	110			
IS: Bismuth	0.200		0.200		108	70	200			

Sample ID CCV1-140129	Batch ID: R70907	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS3_140129A	Analysis Date: 1/29/2014 4:25:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.201	0.00250	0.200	0	101	90	110			
IS: Indium	0.200		0.200		103	70	200			

Sample ID LCVL1-140129	Batch ID: R70907	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS3_140129A	Analysis Date: 1/29/2014 4:44:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00225	0.00250	0.00200	0	112	70	130			
Arsenic	0.00557	0.00500	0.00500	0	111	70	130			
Lead	0.00106	0.00100	0.00100	0	106	70	130			
IS: Bismuth	0.200		0.200		104	70	200			

Qualifiers:					
	B	Analyte detected in the associated Method Blank	DF	Dilution Factor	
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit	Page 6 of 9
	ND	Not Detected at the Method Detection Limit	R	RPD outside acceptec control limits	
	RL	Reporting Limit	S	Spike Recovery outside control limits	
	J	Analyte detected between SDL and RL	N	Parameter not NELAC certified	

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1401180
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140129A

Sample ID CCV2-140129	Batch ID: R70907	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS3_140129A	Analysis Date: 1/29/2014 5:56:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.201	0.00250	0.200	0	101	90	110			
Arsenic	0.212	0.00500	0.200	0	106	90	110			
Lead	0.211	0.00100	0.200	0	105	90	110			
IS: Bismuth	0.200		0.200		103	70	200			

Sample ID LCVL2-140129	Batch ID: R70907	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS3_140129A	Analysis Date: 1/29/2014 6:33:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00223	0.00250	0.00200	0	111	70	130			
Arsenic	0.00558	0.00500	0.00500	0	112	70	130			
Lead	0.00105	0.00100	0.00100	0	105	70	130			
IS: Bismuth	0.200		0.200		112	70	200			

Sample ID CCV3-140129	Batch ID: R70907	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS3_140129A	Analysis Date: 1/29/2014 8:02:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.198	0.00250	0.200	0	99.1	90	110			
Arsenic	0.214	0.00500	0.200	0	107	90	110			
Lead	0.208	0.00100	0.200	0	104	90	110			
IS: Bismuth	0.200		0.200		108	70	200			

Sample ID LCVL3-140129	Batch ID: R70907	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS3_140129A	Analysis Date: 1/29/2014 8:38:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00218	0.00250	0.00200	0	109	70	130			
Arsenic	0.00564	0.00500	0.00500	0	113	70	130			
Lead	0.00108	0.00100	0.00100	0	108	70	130			
IS: Bismuth	0.200		0.200		107	70	200			

Sample ID CCV4-140129	Batch ID: R70907	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS3_140129A	Analysis Date: 1/29/2014 10:45:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.206	0.00250	0.200	0	103	90	110			
Arsenic	0.219	0.00500	0.200	0	110	90	110			
Lead	0.215	0.00100	0.200	0	108	90	110			
IS: Bismuth	0.200		0.200		100	70	200			
IS: Germanium	0.200		0.200		106	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1401180
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140129A

Sample ID CCV4-140129	Batch ID: R70907	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS3_140129A	Analysis Date: 1/29/2014 10:45:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
IS: Indium	0.200		0.200		102	70	200			

Sample ID LCVL4-140129	Batch ID: R70907	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS3_140129A	Analysis Date: 1/29/2014 11:21:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00230	0.00250	0.00200	0	115	70	130			
Arsenic	0.00562	0.00500	0.00500	0	112	70	130			
Lead	0.00107	0.00100	0.00100	0	107	70	130			
IS: Bismuth	0.200		0.200		96.8	70	200			
IS: Germanium	0.200		0.200		103	70	200			
IS: Indium	0.200		0.200		97.1	70	200			

Sample ID CCV5-140129	Batch ID: R70907	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS3_140129A	Analysis Date: 1/30/2014 12:22:00 AM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.201	0.00250	0.200	0	100	90	110			
Arsenic	0.214	0.00500	0.200	0	107	90	110			
Lead	0.211	0.00100	0.200	0	105	90	110			
IS: Bismuth	0.200		0.200		106	70	200			
IS: Germanium	0.200		0.200		106	70	200			
IS: Indium	0.200		0.200		106	70	200			

Sample ID LCVL5-140129	Batch ID: R70907	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS3_140129A	Analysis Date: 1/30/2014 12:58:00 AM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00226	0.00250	0.00200	0	113	70	130			
Arsenic	0.00575	0.00500	0.00500	0	115	70	130			
Lead	0.00112	0.00100	0.00100	0	112	70	130			
IS: Bismuth	0.200		0.200		108	70	200			
IS: Germanium	0.200		0.200		112	70	200			
IS: Indium	0.200		0.200		108	70	200			

Qualifiers:			
B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1401180
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140130A

Sample ID ICV1-140130	Batch ID: R70941	TestNo: SW6020A	Units: mg/L
SampType: ICV	Run ID: ICP-MS3_140130A	Analysis Date: 1/30/2014 11:34:00 AM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0951	0.00250	0.100	0	95.1	90	110			
IS: Indium	0.200		0.200		101	70	200			

Sample ID ILCVL-140130	Batch ID: R70941	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS3_140130A	Analysis Date: 1/30/2014 11:52:00 AM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00199	0.00250	0.00200	0	99.6	70	130			
IS: Indium	0.200		0.200		102	70	200			

Sample ID CCV1-140130	Batch ID: R70941	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS3_140130A	Analysis Date: 1/30/2014 1:29:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.193	0.00250	0.200	0	96.6	90	110			
IS: Indium	0.200		0.200		91.5	70	200			

Sample ID LCVL1-140130	Batch ID: R70941	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS3_140130A	Analysis Date: 1/30/2014 1:59:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00232	0.00250	0.00200	0	116	70	130			
IS: Indium	0.200		0.200		90.5	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1401180
Project: Rockwool TCEQ Belton, TX

MQL SUMMARY REPORT

TestNo: SW6020A	MDL	MQL
Analyte	mg/L	mg/L
Antimony	0.000800	0.00250
Arsenic	0.00200	0.00500
Lead	0.000300	0.00100

Qualifiers: MQL -Method Quantitation Limit as defined by TRRP
MDL -Method Detection Limit as defined by TRRP

March 28, 2014

Paul Kirby
D. B. Stephens & Assoc, Inc.
4030 W Braker #325
Austin, Texas 78759
TEL: (512) 821-2765
FAX

Order No.: 1403158

RE: Rockwool TCEQ Belton, TX

Dear Paul Kirby:

DHL Analytical, Inc. received 24 sample(s) on 3/20/2014 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-13-11

ACCREDITED IN ACCORDANCE WITH nelac

Table of Contents

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 64546

CHAIN-OF-CUSTODY

CLIENT: DBSA
ADDRESS: 4030 West Braker Lane Ste. 325 Austin TX
PHONE: 512-821-2765 FAX/E-MAIL: wgamblin@dbstephens.com
DATA REPORTED TO: William Gamblin
ADDITIONAL REPORT COPIES TO: Invoice per contract

DATE: 3/19/2014 PAGE 1 OF 2
PO #: — DHL WORK ORDER #: 019593 | 403158
PROJECT LOCATION OR NAME: Rockwool - TCEQ - Belton, TX
CLENT PROJECT #: ES14.AIR0.12 COLLECTOR: B.CAMACHO / Paul Kirby

Authorize 5% surcharge for TRRP Report? ☐ Yes ☒ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ (METHOD 8021) | TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ | GRO (METHOD 8015) ☐ DRO (METHOD 8015) ☐ | VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ | 8081 PEST ☐ 608 PEST/PCB ☐ 8270 PEST ☐ | 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ | 8321 HERB ☐ 8330 EXPL ☐ PERCHLORATE ☐ | METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ | RCRA ☐ TX11 ☐ ☐ | PH ☐ HEX CHROM ☐ ALKALINITY ☐ | CHLORIDE ☐ ANIONS ☐ | TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ | TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
MW-20	01	3/19/14	0914	W	P, 250mL	1		X		X		X	see work ORDER
MW-11	02	3/19/14	1014	W	P, 250mL	1		X		X		X	for detailed list
MW-14	03	3/19/14	1059	W	P, 250mL	1		X		X		X	
MW-7	04	3/19/14	1156	W	P, 250mL	1		X		X		X	
MW-19	05	3/19/14	1259	W	P, 250mL	1		X		X		X	
MW-24-90	06	3/19/14	1330	W	P, 250mL	1		X		X		X	
MW-18	07	3/19/14	1419	W	P, 250mL	1		X		X		X	
MW-27-90	08	3/19/14	1510	W	P, 250mL	1		X		X		X	
MW-28-90	09	3/19/14	1700	W	P, 250mL	1		X		X		X	
MW-9	10	3/19/14	1626	W	P, 250mL	1		X		X		X	
ER-1	11	3/19/14	1630	W	P, 250mL	1		X		X		X	
TOTAL						11							

3-19-14

RELINQUISHED BY: (Signature) Ben Camacho — DATE/TIME 3-20-14 0946 — RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) — DATE/TIME — RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) — DATE/TIME — RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

3

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 1.4, 0.5 THERM #: 57
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL #: _____
☐ APC DELIVERY
☐ HAND DELIVERED

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 64547

CHAIN-OF-CUSTODY

CLIENT: DBS&A
ADDRESS: 4030 W. Braker Lane Ste. 325 Austin TX 78759
PHONE: 512-821-2765 FAX/E-MAIL: wgamblin@dbstephens.com
DATA REPORTED TO: William Gamblin
ADDITIONAL REPORT COPIES TO: Invoice per contract requirements

DATE: 3/19/14 PAGE 2 OF 2
PO #: — DHL WORK ORDER #: 019593 | 403153
PROJECT LOCATION OR NAME: Rockwool - TCEQ - Belton, TX
CLENT PROJECT #: ES14.A1RO.12 COLLECTOR: B.CAMACHO/P.Kirby

Authorize 5% surcharge for TRRP Report? ☐ Yes ☒ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ (METHOD 8021) | TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ | GRO (METHOD 8015) ☐ DRO (METHOD 8105) ☐ | VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ | 8081 PEST ☐ 608 PEST/PCB ☐ 8270 PEST ☐ | 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ | 8321 HERB ☐ 8330 EXPL ☐ PERCHLORATE ☐ | METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ | RCRA ☐ TX11 ☐ _____ ☐ | PH ☐ HEX CHROM ☐ ALKALINITY ☐ | CHLORIDE ☐ ANIONS _____ ☐ | TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ | TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

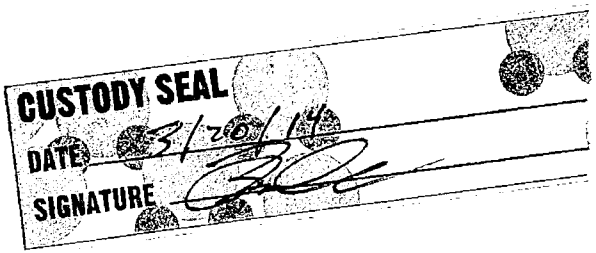
Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 NaOH	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
MW-22	12	3/19/14	0900	W	P, 250mL	1		X		X		X	See work order
MW-37-90	13	3/19/14	1015	W	P 250mL	1		X		X		X	for detailed list
MW-38-90	14	3/19/14	1130	W	P 250mL	1		X		X		X	
MW-35-90	15	3/19/14	1200	W	P 250mL	1		X		X		X	
MW-10	16	3/19/14	1300	W	P 250mL	1		X		X		X	
MW-21	17	3/19/14	1050	W	P 250mL	1		X		X		X	
MW-21 MS	~~18~~	3/19/14	1050	W	P 250mL	1		X		X		X	
MW-21 MSD	~~18~~	3/19/14	1050	W	P 250mL	1		X		X		X	
MW-30-90	18	3/19/14	1320	W	P 250mL	1		X		X		X	
MW-29-90	19	3/19/14	1350	W	P 250mL	1		X		X		X	
MW-17	20	3/19/14	1430	W	P 250mL	1		X		X		X	
MW-33-90	21	3/19/14	1505	W	P 250mL	1		X		X		X	
MW-34-90	22	3/19/14	1540	W	P 250mL	1		X		X		X	
Dup-1	23	3/19/14	—	W	P 250mL	1		X		X		X	
Dup-2	24	3/19/14	—	W	P 250mL	1		X		X		X	
TOTAL						15							

RELINQUISHED BY: (Signature) Ben Camacho DATE/TIME 3/20/14 0946 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

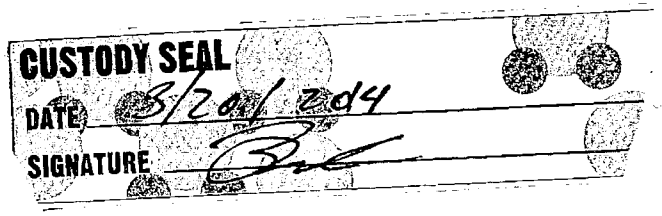
☐ DHL DISPOSAL @ $5.00 each ☐ Return

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 1.4.08 THERM #: 57
CUSTODY SEALS: ☐ BROKEN ☑ INTACT ☐ NOT USED
☐ CARRIER BILL #: _____
☐ APC DELIVERY
☑ HAND DELIVERED


CUSTODY SEAL
DATE 8/20/14
SIGNATURE


QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900


CUSTODY SEAL
DATE 8/20/2014
SIGNATURE


QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name **D. B. Stephens & Assoc, Inc.** Date Received: **3/20/2014**

Work Order Number **1403158** Received by **JB**

Checklist completed by:  3/20/2014 (Signature / Date) Reviewed by JJ 3/20/2014 (Initials / Date)

Carrier name Hand Delivered

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☑	No ☐	Not Present ☐
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	1.4 °C 0-8
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 7179
	Adjusted? NO		Checked by S
Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted?		Checked by

Any No response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

Page 1 of 1

DHL Analytical, Inc.

Laboratory Review Checklist: Reportable Data

Project Name: Rockwool TCEQ Belton, TX	**Date:** 3/28/14
Reviewer Name: Carlos Castro	**Laboratory Work Order:** 1403158
Prep Batch Number(s): See Prep Dates Report	**Run Batch:** See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-Custody (C-O-C)					
R1	OI	1) Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				R1-01
		2) Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and Quality Control (QC) Identification**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test Reports**					
		1) Were all samples prepared and analyzed within holding times?	X				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		3) Were calculations checked by a peer or supervisor?	X				
		4) Were all analyte identifications checked by a peer or supervisor?	X				
		5) Were sample detection limits reported for all analytes not detected?	X				
		6) Were all results for soil and sediment samples reported on a dry weight basis?			X		
		7) Were % moisture (or solids) reported for all soil and sediment samples?			X		
		8) Were bulk soils/solids samples for volatile analysis extracted with methanol per EPA Method 5035?			X		
		9) If required for the project, TICs reported?			X		
R4	O	**Surrogate Recovery Data**					
		1) Were surrogates added prior to extraction?			X		
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		1) Were appropriate type(s) of blanks analyzed?	X				
		2) Were blanks analyzed at the appropriate frequency?	X				
		3) Where method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		4) Were blank concentrations < MQL?	X				
R6	OI	**Laboratory Control Samples (LCS):**					
		1) Were all COCs included in the LCS?	X				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		3) Were LCSs analyzed at the required frequency?	X				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		6) Was the LCSD RPD within QC limits (if applicable)?	X				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Data**					
		1) Were the project/method specified analytes included in the MS and MSD?	X				
		2) Were MS/MSD analyzed at the appropriate frequency?	X				
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		4) Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?			X		
		2) Were analytical duplicates analyzed at the appropriate frequency?			X		
		3) Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	X				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		3) Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?			X		
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		3) Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).

3 NA = Not applicable.

4 NR = Not Reviewed.

5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

DHL Analytical, Inc.
Laboratory Review Checklist (continued): Supporting Data

Project Name: Rockwool TCEQ Belton, TX	**Date:** 3/28/14
Reviewer Name: Carlos Castro	**Laboratory Work Order:** 1403158

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within QC limits?	X				
		2) Were percent RSDs or correlation coefficient criteria met?	X				
		3) Was the number of standards recommended in the method used for all analytes?	X				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		5) Are ICAL data available for all instruments used?	X				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and Continuing calibration Verification (ICCV and CCV) and Continuing Calibration blank (CCB):**					
		1) Was the CCV analyzed at the method-required frequency?	X				
		2) Were percent differences for each analyte within the method-required QC limits?	X				
		3) Was the ICAL curve verified for each analyte?	X				
		4) Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	**Mass Spectral Tuning:**					
		1) Was the appropriate compound for the method used for tuning?	X				
		2) Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal Standards (IS):**					
		1) Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw Data (NELAC Section 5.5.10)**					
		1) Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		2) Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual Column Confirmation**					
		1) Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively Identified Compounds (TICs):**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) Results:**					
		1) Were percent recoveries within method QC limits?	X				
S9	I	**Serial Dilutions, Post Digestion Spikes, and Method of Standard Additions**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	**Method Detection Limit (MDL) Studies**					
		1) Was a MDL study performed for each reported analyte?	X				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency Test Reports:**					
		1) Was the lab's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards Documentation**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/Analyte Identification Procedures**					
		1) Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5 – Appendix C?	X				
		2) Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/Validation Documentation for Methods** (NELAC Chapter 5)					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory Standard Operating Procedures (SOPs):**					
		1) Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Data Package Signature Page – RG-366/TRRP-13

This data package consists of:

This signature page, the laboratory review checklist, and the following reportable data:

- R1 Field chain-of-custody documentation;
- R2 Sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5,
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- R4 Surrogate recovery data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - c) The laboratory's LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a) The amount of analyte measured in the duplicate,
  - b) The calculated RPD, and
  - c) The laboratory's QC limits for analytical duplicates.
- R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;
- R10 Other problems or anomalies.

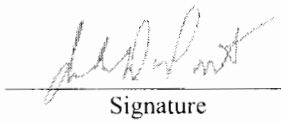
The Exception Report for every "No" or "Not Reviewed (NR)" item in Laboratory Review checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information or data affecting the quality of the data has been knowingly withheld.

This laboratory was last inspected by TCEQ on May 6-10, 2013. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

John DuPont – General Manager

Scott Schroeder – Technical Director



Signature

03/28/14

Date

DHL Analytical, Inc. **Date:** *28-Mar-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool TCEQ Belton, TX
Lab Order: 1403158

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Method SW6020A - Metals Analysis

Exception Report R1-01

The samples were received and log-in performed on 3/20/14. A total of 24 samples were received. The samples arrived in good condition and were properly packaged.

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool TCEQ Belton, TX
Lab Order: 1403158

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1403158-01	MW-20		03/19/14 09:14 AM	3/20/2014
1403158-02	MW-11		03/19/14 10:14 AM	3/20/2014
1403158-03	MW-14		03/19/14 10:59 AM	3/20/2014
1403158-04	MW-7		03/19/14 11:56 AM	3/20/2014
1403158-05	MW-19		03/19/14 12:59 PM	3/20/2014
1403158-06	MW-24-90		03/19/14 01:30 PM	3/20/2014
1403158-07	MW-18		03/19/14 02:19 PM	3/20/2014
1403158-08	MW-27-90		03/19/14 03:10 PM	3/20/2014
1403158-09	MW-28-90		03/19/14 05:00 PM	3/20/2014
1403158-10	MW-9		03/19/14 04:26 PM	3/20/2014
1403158-11	ER-1		03/19/14 04:30 PM	3/20/2014
1403158-12	MW-22		03/19/14 09:00 AM	3/20/2014
1403158-13	MW-37-90		03/19/14 10:15 AM	3/20/2014
1403158-14	MW-38-90		03/19/14 11:30 AM	3/20/2014
1403158-15	MW-35-90		03/19/14 12:00 PM	3/20/2014
1403158-16	MW-10		03/19/14 01:00 PM	3/20/2014
1403158-17	MW-21		03/19/14 10:50 AM	3/20/2014
1403158-18	MW-30-90		03/19/14 01:20 PM	3/20/2014
1403158-19	MW-29-90		03/19/14 01:50 PM	3/20/2014
1403158-20	MW-17		03/19/14 02:30 PM	3/20/2014
1403158-21	MW-33-90		03/19/14 03:05 PM	3/20/2014
1403158-22	MW-34-90		03/19/14 03:40 PM	3/20/2014
1403158-23	DUP-1		03/19/14	3/20/2014
1403158-24	DUP-2		03/19/14	3/20/2014

Lab Order: 1403158
Client: D. B. Stephens & Assoc, Inc.
Project: Rockwool TCEQ Belton, TX

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1403158-01A	MW-20	03/19/14 09:14 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-02A	MW-11	03/19/14 10:14 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-03A	MW-14	03/19/14 10:59 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-04A	MW-7	03/19/14 11:56 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-05A	MW-19	03/19/14 12:59 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-06A	MW-24-90	03/19/14 01:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-07A	MW-18	03/19/14 02:19 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-08A	MW-27-90	03/19/14 03:10 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-09A	MW-28-90	03/19/14 05:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-10A	MW-9	03/19/14 04:26 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-11A	ER-1	03/19/14 04:30 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-12A	MW-22	03/19/14 09:00 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-13A	MW-37-90	03/19/14 10:15 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-14A	MW-38-90	03/19/14 11:30 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
	MW-38-90	03/19/14 11:30 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-15A	MW-35-90	03/19/14 12:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-16A	MW-10	03/19/14 01:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-17A	MW-21	03/19/14 10:50 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-18A	MW-30-90	03/19/14 01:20 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-19A	MW-29-90	03/19/14 01:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/24/14 08:20 AM	62459
1403158-20A	MW-17	03/19/14 02:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/24/14 08:20 AM	62459
1403158-21A	MW-33-90	03/19/14 03:05 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/24/14 08:20 AM	62459
1403158-22A	MW-34-90	03/19/14 03:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/24/14 08:20 AM	62459
1403158-23A	DUP-1	03/19/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/24/14 08:20 AM	62459
1403158-24A	DUP-2	03/19/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/24/14 08:20 AM	62459

Lab Order: 1403158
Client: D. B. Stephens & Assoc, Inc.
Project: Rockwool TCEQ Belton, TX

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1403158-01A	MW-20	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 05:26 PM	ICP-MS2_140320B
1403158-02A	MW-11	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 05:32 PM	ICP-MS2_140320B
1403158-03A	MW-14	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 05:38 PM	ICP-MS2_140320B
1403158-04A	MW-7	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 05:15 PM	ICP-MS2_140320B
1403158-05A	MW-19	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 05:44 PM	ICP-MS2_140320B
1403158-06A	MW-24-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 05:50 PM	ICP-MS2_140320B
1403158-07A	MW-18	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 05:56 PM	ICP-MS2_140320B
1403158-08A	MW-27-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 06:02 PM	ICP-MS2_140320B
1403158-09A	MW-28-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 07:17 PM	ICP-MS2_140320B
1403158-10A	MW-9	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 07:23 PM	ICP-MS2_140320B
1403158-11A	ER-1	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 07:29 PM	ICP-MS2_140320B
1403158-12A	MW-22	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 07:35 PM	ICP-MS2_140320B
1403158-13A	MW-37-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 07:41 PM	ICP-MS2_140320B
1403158-14A	MW-38-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	5	03/20/14 06:30 PM	ICP-MS3_140320B
	MW-38-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 07:46 PM	ICP-MS2_140320B
1403158-15A	MW-35-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 07:52 PM	ICP-MS2_140320B
1403158-16A	MW-10	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 07:58 PM	ICP-MS2_140320B
1403158-17A	MW-21	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 08:04 PM	ICP-MS2_140320B
1403158-18A	MW-30-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 08:10 PM	ICP-MS2_140320B
1403158-19A	MW-29-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62459	1	03/25/14 04:10 AM	ICP-MS3_140324B
1403158-20A	MW-17	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62459	1	03/25/14 04:16 AM	ICP-MS3_140324B
1403158-21A	MW-33-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62459	1	03/25/14 04:22 AM	ICP-MS3_140324B
1403158-22A	MW-34-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62459	1	03/25/14 04:28 AM	ICP-MS3_140324B
1403158-23A	DUP-1	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62459	1	03/25/14 04:34 AM	ICP-MS3_140324B
1403158-24A	DUP-2	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62459	1	03/25/14 04:41 AM	ICP-MS3_140324B

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-20
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-01
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 09:14 AM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00152	0.000800	0.00250	J	mg/L	1	03/20/14 05:26 PM
Arsenic	0.00205	0.00200	0.00500	J	mg/L	1	03/20/14 05:26 PM
Lead	0.000669	0.000300	0.00100	J	mg/L	1	03/20/14 05:26 PM
IS: Bismuth	97.4	0	70-200		%REC	1	03/20/14 05:26 PM
IS: Germanium	91.9	0	70-200		%REC	1	03/20/14 05:26 PM
IS: Indium	91.0	0	70-200		%REC	1	03/20/14 05:26 PM

NKT
4-6-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-11
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-02
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 10:14 AM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	03/20/14 05:32 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	03/20/14 05:32 PM
Lead	0.000372	0.000300	0.00100	J	mg/L	1	03/20/14 05:32 PM
IS: Bismuth	98.1	0	70-200		%REC	1	03/20/14 05:32 PM
IS: Germanium	97.3	0	70-200		%REC	1	03/20/14 05:32 PM
IS: Indium	93.5	0	70-200		%REC	1	03/20/14 05:32 PM

MK
4-6-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-14
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-03
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 10:59 AM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	03/20/14 05:38 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	03/20/14 05:38 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/20/14 05:38 PM
IS: Bismuth	102	0	70-200		%REC	1	03/20/14 05:38 PM
IS: Germanium	101	0	70-200		%REC	1	03/20/14 05:38 PM
IS: Indium	97.8	0	70-200		%REC	1	03/20/14 05:38 PM

MK 4-6-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-7
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-04
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 11:56 AM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00152	0.000800	0.00250	J	mg/L	1	03/20/14 05:15 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	03/20/14 05:15 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/20/14 05:15 PM
IS: Bismuth	103	0	70-200		%REC	1	03/20/14 05:15 PM
IS: Germanium	93.1	0	70-200		%REC	1	03/20/14 05:15 PM
IS: Indium	93.4	0	70-200		%REC	1	03/20/14 05:15 PM

NKT
4-6-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-19
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-05
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 12:59 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00122	0.000800	0.00250	J	mg/L	1	03/20/14 05:44 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	03/20/14 05:44 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/20/14 05:44 PM
IS: Bismuth	103	0	70-200		%REC	1	03/20/14 05:44 PM
IS: Germanium	106	0	70-200		%REC	1	03/20/14 05:44 PM
IS: Indium	101	0	70-200		%REC	1	03/20/14 05:44 PM

MK 4-6-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-24-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-06
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 01:30 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0128	0.000800	0.00250		mg/L	1	03/20/14 05:50 PM
Arsenic	0.0119	0.00200	0.00500		mg/L	1	03/20/14 05:50 PM
Lead	0.000962	0.000300	0.00100	J	mg/L	1	03/20/14 05:50 PM
IS: Bismuth	97.9	0	70-200		%REC	1	03/20/14 05:50 PM
IS: Germanium	104	0	70-200		%REC	1	03/20/14 05:50 PM
IS: Indium	96.9	0	70-200		%REC	1	03/20/14 05:50 PM

MC 4-6-14

Qualifiers:
ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-18
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-07
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 02:19 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	03/20/14 05:56 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	03/20/14 05:56 PM
Lead	0.00115	0.000300	0.00100		mg/L	1	03/20/14 05:56 PM
IS: Bismuth	92.2	0	70-200		%REC	1	03/20/14 05:56 PM
IS: Germanium	100	0	70-200		%REC	1	03/20/14 05:56 PM
IS: Indium	94.2	0	70-200		%REC	1	03/20/14 05:56 PM

4-6-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-27-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-08
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 03:10 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0562	0.000800	0.00250		mg/L	1	03/20/14 06:02 PM
Arsenic	0.00210	0.00200	0.00500	J	mg/L	1	03/20/14 06:02 PM
Lead	0.00176	0.000300	0.00100		mg/L	1	03/20/14 06:02 PM
IS: Bismuth	99.8	0	70-200		%REC	1	03/20/14 06:02 PM
IS: Germanium	110	0	70-200		%REC	1	03/20/14 06:02 PM
IS: Indium	102	0	70-200		%REC	1	03/20/14 06:02 PM

MC 4-6-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-28-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-09
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 05:00 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00586	0.000800	0.00250		mg/L	1	03/20/14 07:17 PM
Arsenic	0.0168	0.00200	0.00500		mg/L	1	03/20/14 07:17 PM
Lead	0.00112	0.000300	0.00100		mg/L	1	03/20/14 07:17 PM
IS: Bismuth	107	0	70-200		%REC	1	03/20/14 07:17 PM
IS: Germanium	115	0	70-200		%REC	1	03/20/14 07:17 PM
IS: Indium	107	0	70-200		%REC	1	03/20/14 07:17 PM

4/6-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-9
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-10
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 04:26 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.245	0.000800	0.00250		mg/L	1	03/20/14 07:23 PM
Arsenic	0.0899	0.00200	0.00500		mg/L	1	03/20/14 07:23 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/20/14 07:23 PM
IS: Bismuth	98.6	0	70-200		%REC	1	03/20/14 07:23 PM
IS: Germanium	112	0	70-200		%REC	1	03/20/14 07:23 PM
IS: Indium	101	0	70-200		%REC	1	03/20/14 07:23 PM

MK 4-6-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	ER-1
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-11
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 04:30 PM
Lab Order:	1403158	**Matrix:**	EQUIP BLANK

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	03/20/14 07:29 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	03/20/14 07:29 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/20/14 07:29 PM
IS: Bismuth	105	0	70-200		%REC	1	03/20/14 07:29 PM
IS: Germanium	113	0	70-200		%REC	1	03/20/14 07:29 PM
IS: Indium	105	0	70-200		%REC	1	03/20/14 07:29 PM

JK 4-6-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-22
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-12
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 09:00 AM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	03/20/14 07:35 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	03/20/14 07:35 PM
Lead	0.000474	0.000300	0.00100	J	mg/L	1	03/20/14 07:35 PM
IS: Bismuth	99.7	0	70-200		%REC	1	03/20/14 07:35 PM
IS: Germanium	110	0	70-200		%REC	1	03/20/14 07:35 PM
IS: Indium	102	0	70-200		%REC	1	03/20/14 07:35 PM

MC 4-6-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-37-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-13
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 10:15 AM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.000951	0.000800	0.00250	J	mg/L	1	03/20/14 07:41 PM
Arsenic	0.0213	0.00200	0.00500		mg/L	1	03/20/14 07:41 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/20/14 07:41 PM
IS: Bismuth	105	0	70-200		%REC	1	03/20/14 07:41 PM
IS: Germanium	116	0	70-200		%REC	1	03/20/14 07:41 PM
IS: Indium	109	0	70-200		%REC	1	03/20/14 07:41 PM

4.6.14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-38-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-14
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 11:30 AM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.550	0.00400	0.0125		mg/L	5	03/20/14 06:30 PM
Arsenic	0.00258	0.00200	0.00500	J	mg/L	1	03/20/14 07:46 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/20/14 07:46 PM
IS: Bismuth	104	0	70-200		%REC	1	03/20/14 07:46 PM
IS: Germanium	117	0	70-200		%REC	1	03/20/14 07:46 PM
IS: Indium	107	0	70-200		%REC	5	03/20/14 06:30 PM

MKT 4-6-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-35-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-15
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 12:00 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.166	0.000800	0.00250		mg/L	1	03/20/14 07:52 PM
Arsenic	0.0558	0.00200	0.00500		mg/L	1	03/20/14 07:52 PM
Lead	0.0479	0.000300	0.00100		mg/L J1-FD	1	03/20/14 07:52 PM
IS: Bismuth	102	0	70-200		%REC	1	03/20/14 07:52 PM
IS: Germanium	117	0	70-200		%REC	1	03/20/14 07:52 PM
IS: Indium	107	0	70-200		%REC	1	03/20/14 07:52 PM

MK 4.6.14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-10
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-16
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 01:00 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	03/20/14 07:58 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	03/20/14 07:58 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/20/14 07:58 PM
IS: Bismuth	106	0	70-200		%REC	1	03/20/14 07:58 PM
IS: Germanium	121	0	70-200		%REC	1	03/20/14 07:58 PM
IS: Indium	110	0	70-200		%REC	1	03/20/14 07:58 PM

MKT 4-6-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-21
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-17
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 10:50 AM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.211	0.000800	0.00250		mg/L	1	03/20/14 08:04 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	03/20/14 08:04 PM
Lead	0.000322	0.000300	0.00100	J	mg/L	1	03/20/14 08:04 PM
IS: Bismuth	112	0	70-200		%REC	1	03/20/14 08:04 PM
IS: Germanium	126	0	70-200		%REC	1	03/20/14 08:04 PM
IS: Indium	115	0	70-200		%REC	1	03/20/14 08:04 PM

4-6-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-30-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-18
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 01:20 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00146	0.000800	0.00250	J	mg/L	1	03/20/14 08:10 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	03/20/14 08:10 PM
Lead	0.00380	0.000300	0.00100		mg/L	1	03/20/14 08:10 PM
IS: Bismuth	106	0	70-200		%REC	1	03/20/14 08:10 PM
IS: Germanium	123	0	70-200		%REC	1	03/20/14 08:10 PM
IS: Indium	111	0	70-200		%REC	1	03/20/14 08:10 PM

MLT 4-6-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-29-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-19
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 01:50 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0254	0.000800	0.00250		mg/L	1	03/25/14 04:10 AM
Arsenic	0.00514	0.00200	0.00500		mg/L	1	03/25/14 04:10 AM
Lead	0.00359	0.000300	0.00100		mg/L	1	03/25/14 04:10 AM
IS: Bismuth	78.9	0	70-200		%REC	1	03/25/14 04:10 AM
IS: Germanium	72.5	0	70-200		%REC	1	03/25/14 04:10 AM
IS: Indium	79.3	0	70-200		%REC	1	03/25/14 04:10 AM

MK 4-16-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-17
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-20
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 02:30 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0490	0.000800	0.00250		mg/L	1	03/25/14 04:16 AM
Arsenic	0.0149	0.00200	0.00500		mg/L	1	03/25/14 04:16 AM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/25/14 04:16 AM
IS: Bismuth	83.3	0	70-200		%REC	1	03/25/14 04:16 AM
IS: Germanium	76.9	0	70-200		%REC	1	03/25/14 04:16 AM
IS: Indium	83.6	0	70-200		%REC	1	03/25/14 04:16 AM

MK
4-6-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-33-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-21
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 03:05 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.131	0.000800	0.00250		mg/L	1	03/25/14 04:22 AM
Arsenic	0.0387	0.00200	0.00500		mg/L	1	03/25/14 04:22 AM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/25/14 04:22 AM
IS: Bismuth	82.2	0	70-200		%REC	1	03/25/14 04:22 AM
IS: Germanium	79.7	0	70-200		%REC	1	03/25/14 04:22 AM
IS: Indium	82.0	0	70-200		%REC	1	03/25/14 04:22 AM

MK 4-6-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	DUP-1
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-23
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.149	0.000800	0.00250		mg/L	1	03/25/14 04:34 AM
Arsenic	0.0446	0.00200	0.00500		mg/L	1	03/25/14 04:34 AM
Lead	0.0268	0.000300	0.00100	J1-FD	mg/L	1	03/25/14 04:34 AM
IS: Bismuth	76.2	0	70-200		%REC	1	03/25/14 04:34 AM
IS: Germanium	73.0	0	70-200		%REC	1	03/25/14 04:34 AM
IS: Indium	76.4	0	70-200		%REC	1	03/25/14 04:34 AM

mc 4-6-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-34-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-22
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 03:40 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.305	0.000800	0.00250		mg/L	1	03/25/14 04:28 AM
Arsenic	0.447	0.00200	0.00500		mg/L	1	03/25/14 04:28 AM
Lead	0.000894	0.000300	0.00100	J	mg/L	1	03/25/14 04:28 AM
IS: Bismuth	81.5	0	70-200		%REC	1	03/25/14 04:28 AM
IS: Germanium	78.5	0	70-200		%REC	1	03/25/14 04:28 AM
IS: Indium	81.9	0	70-200		%REC	1	03/25/14 04:28 AM

MC 4-6-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	DUP-2
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-24
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.316	0.000800	0.00250		mg/L	1	03/25/14 04:41 AM
Arsenic	0.463	0.00200	0.00500		mg/L	1	03/25/14 04:41 AM
Lead	0.00114	0.000300	0.00100		mg/L	1	03/25/14 04:41 AM
IS: Bismuth	79.7	0	70-200		%REC	1	03/25/14 04:41 AM
IS: Germanium	76.5	0	70-200		%REC	1	03/25/14 04:41 AM
IS: Indium	79.4	0	70-200		%REC	1	03/25/14 04:41 AM

mlc 4-6-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1403158
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS2_131227A

Sample ID **DCS-58199-1**	Batch ID: **58199**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **DCS**	Run ID: **ICP-MS2_131227A**	Analysis Date: **12/27/2013 12:33:00 P**	Prep Date: **7/2/2013**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.000924	0.00250	0.00100	0	92.4	80	120	0	0	
Arsenic	0.000914	0.00500	0.00100	0	91.4	80	120	0	0	
Lead	0.00102	0.00100	0.00100	0	102	80	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1403158
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS2_140320B

The QC data in batch 62377 applies to the following samples: 1403158-01A, 1403158-02A, 1403158-03A, 1403158-04A, 1403158-05A, 1403158-06A, 1403158-07A, 1403158-08A, 1403158-09A, 1403158-10A, 1403158-11A, 1403158-12A, 1403158-13A, 1403158-14A, 1403158-15A, 1403158-16A, 1403158-17A, 1403158-18A

Sample ID **MB-62377** Batch ID: **62377** TestNo: **SW6020A** Units: **mg/L**
SampType: **MBLK** Run ID: **ICP-MS2_140320B** Analysis Date: **3/20/2014 4:39:00 PM** Prep Date: **3/18/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Lead	<0.000300	0.00100								
IS: Bismuth	0.200		0.200		107	70	200			

Sample ID **LCS-62377** Batch ID: **62377** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCS** Run ID: **ICP-MS2_140320B** Analysis Date: **3/20/2014 4:45:00 PM** Prep Date: **3/18/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.191	0.00250	0.200	0	95.6	80	120			
Arsenic	0.193	0.00500	0.200	0	96.7	80	120			
Lead	0.192	0.00100	0.200	0	96.2	80	120			
IS: Bismuth	0.200		0.200		105	70	200			

Sample ID **LCSD-62377** Batch ID: **62377** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS2_140320B** Analysis Date: **3/20/2014 4:51:00 PM** Prep Date: **3/18/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.185	0.00250	0.200	0	92.6	80	120	3.19	15	
Arsenic	0.186	0.00500	0.200	0	93.1	80	120	3.79	15	
Lead	0.188	0.00100	0.200	0	94.2	80	120	2.05	15	
IS: Bismuth	0.200		0.200		107	70	200	0	0	

Sample ID **1403158-04A SD** Batch ID: **62377** TestNo: **SW6020A** Units: **mg/L**
SampType: **SD** Run ID: **ICP-MS2_140320B** Analysis Date: **3/20/2014 5:21:00 PM** Prep Date: **3/18/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.00400	0.0125	0	0.00152				0	10	
Arsenic	<0.0100	0.0250	0	0				0	10	
Lead	<0.00150	0.00500	0	0				0	10	
IS: Bismuth	1.00		0.200		105	70	200	0	0	

Sample ID **1403158-04A PDS** Batch ID: **62377** TestNo: **SW6020A** Units: **mg/L**
SampType: **PDS** Run ID: **ICP-MS2_140320B** Analysis Date: **3/20/2014 6:07:00 PM** Prep Date: **3/18/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.180	0.00250	0.200	0.00152	89.0	80	120			
Arsenic	0.179	0.00500	0.200	0	89.4	80	120			
Lead	0.184	0.00100	0.200	0	92.2	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1403158
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS2_140320B

Sample ID **1403158-04A PDS**	Batch ID: **62377**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **PDS**	Run ID: **ICP-MS2_140320B**	Analysis Date: **3/20/2014 6:07:00 PM**	Prep Date: **3/18/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
IS: Bismuth	0.200		0.200		103	70	200			

Sample ID **1403158-04A MS**	Batch ID: **62377**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MS**	Run ID: **ICP-MS2_140320B**	Analysis Date: **3/20/2014 6:13:00 PM**	Prep Date: **3/18/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.191	0.00250	0.200	0.00152	94.9	80	120			
Arsenic	0.194	0.00500	0.200	0	97.2	80	120			
Lead	0.196	0.00100	0.200	0	98.0	80	120			
IS: Bismuth	0.200		0.200		102	70	200			

Sample ID **1403158-04A MSD**	Batch ID: **62377**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MSD**	Run ID: **ICP-MS2_140320B**	Analysis Date: **3/20/2014 6:19:00 PM**	Prep Date: **3/18/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.193	0.00250	0.200	0.00152	95.6	80	120	0.729	15	
Arsenic	0.196	0.00500	0.200	0	98.1	80	120	0.922	15	
Lead	0.195	0.00100	0.200	0	97.6	80	120	0.409	15	
IS: Bismuth	0.200		0.200		101	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1403158
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS2_140320B

Sample ID ICV1-140320	Batch ID: R71873	TestNo: SW6020A	Units: mg/L
SampType: ICV	Run ID: ICP-MS2_140320B	Analysis Date: 3/20/2014 1:49:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0948	0.00250	0.100	0	94.8	90	110			
Arsenic	0.0971	0.00500	0.100	0	97.1	90	110			
Lead	0.0970	0.00100	0.100	0	97.0	90	110			
IS: Bismuth	0.200		0.200		103	70	200			

Sample ID ILCVL-140320	Batch ID: R71873	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS2_140320B	Analysis Date: 3/20/2014 2:07:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00185	0.00250	0.00200	0	92.6	70	130			
Arsenic	0.00459	0.00500	0.00500	0	91.8	70	130			
Lead	0.000953	0.00100	0.00100	0	95.3	70	130			
IS: Bismuth	0.200		0.200		104	70	200			

Sample ID CCV1-140320	Batch ID: R71873	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID ICP-MS2_140320B	Analysis Date: 3/20/2014 3:28:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.207	0.00250	0.200	0	103	90	110			
Arsenic	0.203	0.00500	0.200	0	102	90	110			
Lead	0.206	0.00100	0.200	0	103	90	110			
IS: Bismuth	0.200		0.200		103	70	200			

Sample ID LCVL1-140320	Batch ID: R71873	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS2_140320B	Analysis Date: 3/20/2014 3:58:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00205	0.00250	0.00200	0	102	70	130			
Arsenic	0.00455	0.00500	0.00500	0	90.9	70	130			
Lead	0.000939	0.00100	0.00100	0	93.9	70	130			
IS: Bismuth	0.200		0.200		109	70	200			

Sample ID CCV2-140320	Batch ID: R71873	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS2_140320B	Analysis Date: 3/20/2014 6:25:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.203	0.00250	0.200	0	102	90	110			
Arsenic	0.202	0.00500	0.200	0	101	90	110			
Lead	0.205	0.00100	0.200	0	102	90	110			
IS: Bismuth	0.200		0.200		105	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1403158
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS2_140320B

Sample ID **LCVL2-140320**	Batch ID: **R71873**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS2_140320B**	Analysis Date: **3/20/2014 6:59:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00203	0.00250	0.00200	0	101	70	130			
Arsenic	0.00448	0.00500	0.00500	0	89.5	70	130			
Lead	0.000966	0.00100	0.00100	0	96.6	70	130			
IS: Bismuth	0.200		0.200		108	70	200			

Sample ID **CCV3-140320**	Batch ID: **R71873**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS2_140320B**	Analysis Date: **3/20/2014 8:15:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.202	0.00250	0.200	0	101	90	110			
Arsenic	0.199	0.00500	0.200	0	99.4	90	110			
Lead	0.202	0.00100	0.200	0	101	90	110			
IS: Bismuth	0.200		0.200		108	70	200			
IS: Germanium	0.200		0.200		121	70	200			
IS: Indium	0.200		0.200		111	70	200			

Sample ID **LCVL3-140320**	Batch ID: **R71873**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS2_140320B**	Analysis Date: **3/20/2014 8:50:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00199	0.00250	0.00200	0	99.2	70	130			
Arsenic	0.00450	0.00500	0.00500	0	90.0	70	130			
Lead	0.000936	0.00100	0.00100	0	93.6	70	130			
IS: Bismuth	0.200		0.200		111	70	200			
IS: Germanium	0.200		0.200		125	70	200			
IS: Indium	0.200		0.200		115	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1403158
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140203A

Sample ID	DCS-61631-1	Batch ID:	61631	TestNo:	SW6020A	Units:	mg/L
SampType:	DCS	Run ID:	ICP-MS3_140203A	Analysis Date:	2/3/2014 4:01:00 PM	Prep Date:	2/3/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.000923	0.00250	0.00100	0	92.3	65	135	0	0	
Arsenic	0.000942	0.00500	0.00100	0	94.2	65	135	0	0	
Lead	0.00104	0.00100	0.00100	0	104	65	135	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1403158
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140320B

Sample ID **ICV1-140320**	Batch ID: **R71877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_140320B**	Analysis Date: **3/20/2014 12:05:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0958	0.00250	0.100	0	95.8	90	110			
IS: Indium	0.200		0.200		98.7	70	200			

Sample ID **ILCVL-140320**	Batch ID: **R71877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140320B**	Analysis Date: **3/20/2014 12:24:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00208	0.00250	0.00200	0	104	70	130			
IS: Indium	0.200		0.200		100	70	200			

Sample ID **CCV2-140320**	Batch ID: **R71877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_140320B**	Analysis Date: **3/20/2014 5:00:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.202	0.00250	0.200	0	101	90	110			
IS: Indium	0.200		0.200		99.8	70	200			

Sample ID **LCVL2-140320**	Batch ID: **R71877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140320B**	Analysis Date: **3/20/2014 5:24:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00231	0.00250	0.00200	0	115	70	130			
IS: Indium	0.200		0.200		99.9	70	200			

Sample ID **CCV3-140320**	Batch ID: **R71877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_140320B**	Analysis Date: **3/20/2014 6:42:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.199	0.00250	0.200	0	99.4	90	110			
IS: Indium	0.200		0.200		104	70	200			

Sample ID **LCVL3-140320**	Batch ID: **R71877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140320B**	Analysis Date: **3/20/2014 7:18:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00216	0.00250	0.00200	0	108	70	130			
IS: Indium	0.200		0.200		106	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1403158
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140324B

The QC data in batch 62459 applies to the following samples: 1403158-19A, 1403158-20A, 1403158-21A, 1403158-22A, 1403158-23A, 1403158-24A

Sample ID **MB-62459** Batch ID: **62459** TestNo: **SW6020A** Units: **mg/L**
SampType: **MBLK** Run ID: **ICP-MS3_140324B** Analysis Date: **3/25/2014 2:52:00 AM** Prep Date: **3/24/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Lead	<0.000300	0.00100								
IS: Bismuth	0.200		0.200		86.1	70	200			

Sample ID **LCS-62459** Batch ID: **62459** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCS** Run ID: **ICP-MS3_140324B** Analysis Date: **3/25/2014 2:58:00 AM** Prep Date: **3/24/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.196	0.00250	0.200	0	98.1	80	120			
Arsenic	0.205	0.00500	0.200	0	103	80	120			
Lead	0.196	0.00100	0.200	0	97.8	80	120			
IS: Bismuth	0.200		0.200		83.9	70	200			

Sample ID **LCSD-62459** Batch ID: **62459** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCSD** Run ID **ICP-MS3_140324B** Analysis Date: **3/25/2014 3:04:00 AM** Prep Date: **3/24/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.194	0.00250	0.200	0	97.0	80	120	1.13	15	
Arsenic	0.204	0.00500	0.200	0	102	80	120	0.733	15	
Lead	0.194	0.00100	0.200	0	97.2	80	120	0.615	15	
IS: Bismuth	0.200		0.200		84.0	70	200	0	0	

Sample ID **1403188-01A SD** Batch ID: **62459** TestNo: **SW6020A** Units: **mg/L**
SampType: **SD** Run ID: **ICP-MS3_140324B** Analysis Date: **3/25/2014 3:46:00 AM** Prep Date: **3/24/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.00400	0.0125	0	0				0	10	
Arsenic	<0.0100	0.0250	0	0				0	10	
Lead	<0.00150	0.00500	0	0				0	10	
IS: Bismuth	1.00		0.200		86.5	70	200	0	0	

Sample ID **1403188-01A PDS** Batch ID: **62459** TestNo: **SW6020A** Units: **mg/L**
SampType: **PDS** Run ID: **ICP-MS3_140324B** Analysis Date: **3/25/2014 4:47:00 AM** Prep Date: **3/24/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.170	0.00250	0.200	0	85.2	80	120			
Arsenic	0.198	0.00500	0.200	0	98.8	80	120			
Lead	0.188	0.00100	0.200	0	93.8	80	120			
IS: Bismuth	0.200		0.200		83.3	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1403158
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140324B

Sample ID **1403188-01A MS**	Batch ID: **62459**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MS**	Run ID: **ICP-MS3_140324B**	Analysis Date: **3/25/2014 4:53:00 AM**	Prep Date: **3/24/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.196	0.00250	0.200	0	98.2	80	120			
Arsenic	0.206	0.00500	0.200	0	103	80	120			
Lead	0.194	0.00100	0.200	0	97.1	80	120			
IS: Bismuth	0.200		0.200		81.1	70	200			

Sample ID **1403188-01A MSD**	Batch ID: **62459**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MSD**	Run ID: **ICP-MS3_140324B**	Analysis Date: **3/25/2014 4:59:00 AM**	Prep Date: **3/24/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.195	0.00250	0.200	0	97.6	80	120	0.511	15	
Arsenic	0.207	0.00500	0.200	0	103	80	120	0.437	15	
Lead	0.194	0.00100	0.200	0	97.2	80	120	0.103	15	
IS: Bismuth	0.200		0.200		81.8	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1403158
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140324B

Sample ID ICV1-140324	Batch ID: R71919	TestNo: SW6020A	Units: mg/L
SampType: ICV	Run ID: ICP-MS3_140324B	Analysis Date: 3/24/2014 3:24:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0946	0.00250	0.100	0	94.6	90	110			
Arsenic	0.0995	0.00500	0.100	0	99.5	90	110			
Lead	0.100	0.00100	0.100	0	100	90	110			
IS: Bismuth	0.200		0.200		99.5	70	200			

Sample ID ILCVL-140324	Batch ID: R71919	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS3_140324B	Analysis Date: 3/24/2014 3:36:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00167	0.00250	0.00200	0	83.6	70	130			
Arsenic	0.00479	0.00500	0.00500	0	95.8	70	130			
Lead	0.000960	0.00100	0.00100	0	96.0	70	130			
IS: Bismuth	0.200		0.200		101	70	200			

Sample ID CCV5-140324	Batch ID: R71919	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID ICP-MS3_140324B	Analysis Date: 3/25/2014 2:09:00 AM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.206	0.00250	0.200	0	103	90	110			
Arsenic	0.207	0.00500	0.200	0	104	90	110			
Lead	0.200	0.00100	0.200	0	100	90	110			
IS: Bismuth	0.200		0.200		82.0	70	200			

Sample ID LCVL5-140324	Batch ID: R71919	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS3_140324B	Analysis Date: 3/25/2014 2:33:00 AM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00184	0.00250	0.00200	0	92.0	70	130			
Arsenic	0.00491	0.00500	0.00500	0	98.2	70	130			
Lead	0.000923	0.00100	0.00100	0	92.3	70	130			
IS: Bismuth	0.200		0.200		85.1	70	200			

Sample ID CCV6-140324	Batch ID: R71919	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS3_140324B	Analysis Date: 3/25/2014 5:05:00 AM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.198	0.00250	0.200	0	99.2	90	110			
Arsenic	0.208	0.00500	0.200	0	104	90	110			
Lead	0.199	0.00100	0.200	0	99.6	90	110			
IS: Bismuth	0.200		0.200		79.6	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1403158
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140324B

Sample ID **LCVL6-140324** Batch ID: **R71919** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS3_140324B** Analysis Date: **3/25/2014 5:41:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00183	0.00250	0.00200	0	91.4	70	130			
Arsenic	0.00497	0.00500	0.00500	0	99.4	70	130			
Lead	0.000925	0.00100	0.00100	0	92.5	70	130			
IS: Bismuth	0.200		0.200		82.3	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1403158
Project: Rockwool TCEQ Belton, TX

MQL SUMMARY REPORT

TestNo: SW6020A	MDL	MQL
Analyte	**mg/L**	**mg/L**
Antimony	0.000800	0.00250
Arsenic	0.00200	0.00500
Lead	0.000300	0.00100

Qualifiers: MQL -Method Quantitation Limit as defined by TRRP
MDL -Method Detection Limit as defined by TRRP

DHL ANALYTICAL

June 06, 2014

Paul Kirby
D. B. Stephens & Assoc, Inc.
4030 W Braker #325
Austin, Texas 78759
TEL: (512) 821-2765
FAX

Order No.: 1405261

RE: TCEQ - Rockwool Belton, TX

Dear Paul Kirby:

DHL Analytical, Inc. received 24 sample(s) on 5/22/2014 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-14-12

ACCREDITED IN ACCORDANCE WITH nelac

Table of Contents

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 65633

CHAIN-OF-CUSTODY

CLIENT: DBSA
ADDRESS: 4030 W. Braker Lane Ste 325 Austin TX 78759
PHONE: 512-821-2765 FAX/E-MAIL: wgambling@dbstephens.com
DATA REPORTED TO: wgambling@dbstephens.com
ADDITIONAL REPORT COPIES TO: invoice to esmith@dbstephens.com

DATE: 5-21-14 PAGE 1 OF 1
PO #: — DHL WORK ORDER #: 019774 #1405261
PROJECT LOCATION OR NAME: TCEQ - Rockwool Belton TX
CLENT PROJECT #: ES14AIR8.12 COLLECTOR: B.CAMACHO

Authorize 5% surcharge for TRRP Report? ☐ Yes ☒ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
MW-22	01	5-21-14	0910	W	P, 250mL	1		X		X		X	See work order for detailed list
MW-37-90	02	5-21-14	0951	W	P, 250mL	1		X		X		X	
MW-~~S~~21	03	5-21-14	1020	W	P, 250mL	3		X		X		X	→ MS/MSD
MW-38-90	04	5-21-14	1044	W	P, 250mL	1		X		X		X	
MW-35-90	05	5-21-14	1115	W	P, 250mL	1		X		X		X	
MW-10	06	5-21-14	1200	W	P, 250mL	1		X		X		X	
MW-30-90	07	5-21-14	1220	W	P, 250mL	1		X		X		X	
MW-29-90	08	5-21-14	1250	W	P, 250mL	1		X		X		X	
MW-17	09	5-21-14	1335	W	P, 250mL	1		X		X		X	
MW-33-90	10	5-21-14	1410	W	P, 250mL	1		X		X		X	
MW-34-90	11	5-21-14	1450	W	P, 250mL	1		X		X		X	
Dup-1	12	—	—	W	P, 250mL	1		X		X		X	
Dup-2	13	—	—	W	P, 250mL	1		X		X		X	
ER-1	14	5-21-14	1700	W	P, 250mL	1		X		X		X	
TOTAL						16						16	

ANALYSES: BTEX ☐ MTBE ☐ (METHOD 8021); TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐; GRO (METHOD 8015) ☐ DRO (METHOD 8105) ☐; VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐; SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐; 8081 PEST ☐ 608 PEST/PCB ☐ 8270 PEST ☐; 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐; 8321 HERB ☐ 8330 EXPL ☐ PERCHLORATE ☐; METALS 6020A ☐ METALS 200.8 ☐ DISS. METALS ☐ ____ ☐; RCRA ☐ TX11 ☐ ____; PH ☐ HEX CHROM ☐ ALKALINITY ☐ ____; CHLORIDE ☐ ANIONS ____ ☐; TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐; TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐; RCI ☐ TOX ☐ FLASHPOINT ☐; TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

RELINQUISHED BY: (Signature) CAMACHO, BEN — DATE/TIME 5/22/14 922 — RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) — DATE/TIME — RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) — DATE/TIME — RECEIVED BY: (Signature)

☒ DHL DISPOSAL @ $5.00 each ☐ Return

3

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 0-8 THERM #: 57
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL #: _____
☐ APC DELIVERY
☒ HAND DELIVERED

DHL ANALYTICAL

2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 65634

CHAIN-OF-CUSTODY

CLIENT: DBSA
ADDRESS: 4030 W. Braker Lane Ste 325 Austin TX 78759
PHONE: 512-821-2765 FAX/E-MAIL: wgamblin@dbstephens.com
DATA REPORTED TO: wgamblin@dbstephens.com
ADDITIONAL REPORT COPIES TO: invoice to esmith@dbstephens.com

DATE: 5-21-14 PAGE 1 OF 1
PO #: — DHL WORK ORDER #: 019774 1405261
PROJECT LOCATION OR NAME: TCEQ - Rockwool - Belton TX
CLENT PROJECT #: ES14.A1A9.12 COLLECTOR: B. CAMACHO

Authorize 5% surcharge for TRRP Report? ☐ Yes ☒ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ (METHOD 8021) | TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ | GRO (METHOD 8015) ☐ DRO (METHOD 8105) ☐ | VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ | 8081 PEST ☐ 608 PEST/PCB ☐ 8082 PCB ☐ 8270 PEST ☐ | 8270 O-P PEST ☐ 8321 HERB ☐ 8330 EXPL ☐ PERCHLORATE ☐ | METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ | RCRA ☐ TX11 ☐ | PH ☐ HEX CHROM ☐ ALKALINITY ☐ | CHLORIDE ☐ ANIONS ☐ | TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ | TCLP-METALS ☐ RCRA 8 ☐ TX-1 ☐ Pb ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 NaOH	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
MW-20	15	5-21-14	0926	W	P, 250mL	1		X		X		X	See work order for detailed list
MW-11	16	5-21-14	~~1015~~ 1016	W	P, 250mL	1		X		X		X	
MW-14	17	5-21-14	1056	W	P, 250mL	1		X		X		X	
MW-7	18	5-21-14	1154	W	P, 250mL	1		X		X		X	
MW-19	19	5-21-14	1234	W	P, 250mL	1		X		X		X	
MW-24-90	20	5-21-14	1311	W	P, 250mL	1		X		X		X	
MW-15	21	5-21-14	1356	W	P, 250mL	1		X		X		X	
MW-27-90	22	5-21-14	1511	W	P, 250mL	1		X		X		X	
MW-28-90	23	5-21-14	1456	W	P, 250mL	1		X		X		X	
MW-9	24	5-21-14	1541	W	P, 250mL	1		X		X		X	
TOTAL						10						10	

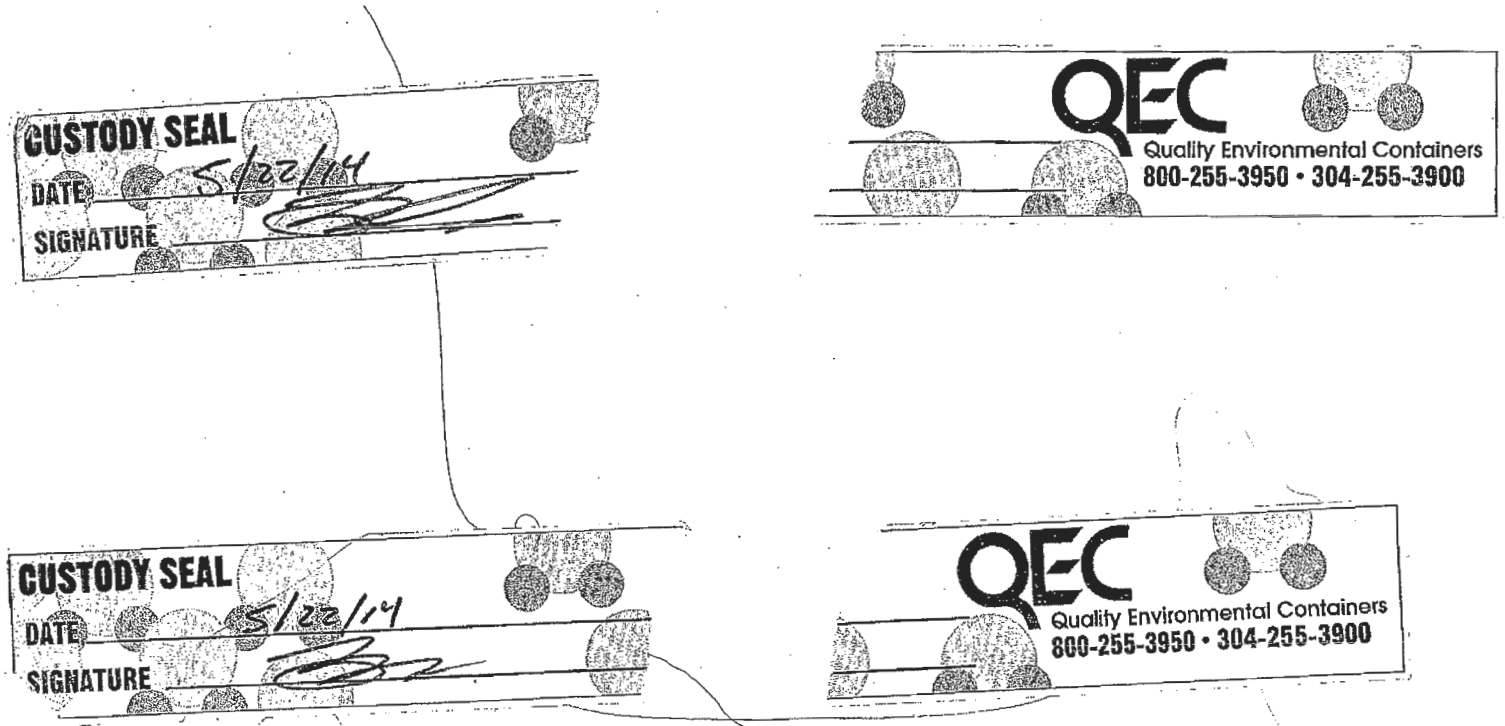
RELINQUISHED BY: (Signature) Ben Camacho DATE/TIME 5/22/14 922 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☒ DHL DISPOSAL @ $5.00 each ☐ Return

4

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 1-2 THERM #: 57
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL #: _____
☐ APC DELIVERY
☒ HAND DELIVERED


CUSTODY SEAL
DATE 5/22/14
SIGNATURE
QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900
CUSTODY SEAL
DATE 5/22/14
SIGNATURE
QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name D. B. Stephens & Assoc, Inc. | Date Received: 5/22/2014

Work Order Number 1405261 | Received by JB

Checklist completed by: [signature] Signature | 5/22/2014 Date | Reviewed by DL Initials | 5/22/2014 Date

Carrier name Hand Delivered

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☑	No ☐	Not Present ☐
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	0.8 °C 1.2
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 7179
	Adjusted? NO		Checked by D
Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted?		Checked by

Any No response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

Page 1 of 1

DHL Analytical, Inc.
Laboratory Review Checklist: Reportable Data

Project Name: TCEQ - Rockwool Belton, TX	**Date:** 6/6/2014
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1405261
Prep Batch Number(s): See Prep Dates Report	**Run Batch:** See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-Custody (C-O-C)					
R1	OI	1) Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				R1-01
		2) Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and Quality Control (QC) Identification**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test Reports**					
		1) Were all samples prepared and analyzed within holding times?	X				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		3) Were calculations checked by a peer or supervisor?	X				
		4) Were all analyte identifications checked by a peer or supervisor?	X				
		5) Were sample detection limits reported for all analytes not detected?	X				
		6) Were all results for soil and sediment samples reported on a dry weight basis?			X		
		7) Were % moisture (or solids) reported for all soil and sediment samples?			X		
		8) Were bulk soils/solids samples for volatile analysis extracted with methanol per EPA Method 5035?			X		
		9) If required for the project, TICs reported?			X		
R4	O	**Surrogate Recovery Data**					
		1) Were surrogates added prior to extraction?			X		
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		1) Were appropriate type(s) of blanks analyzed?	X				
		2) Were blanks analyzed at the appropriate frequency?	X				
		3) Where method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		4) Were blank concentrations < MQL?	X				
R6	OI	**Laboratory Control Samples (LCS):**					
		1) Were all COCs included in the LCS?	X				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		3) Were LCSs analyzed at the required frequency?	X				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		6) Was the LCSD RPD within QC limits (if applicable)?	X				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Data**					
		1) Were the project/method specified analytes included in the MS and MSD?	X				
		2) Were MS/MSD analyzed at the appropriate frequency?	X				
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		4) Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?			X		
		2) Were analytical duplicates analyzed at the appropriate frequency?			X		
		3) Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	X				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		3) Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		3) Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

DHL Analytical, Inc.
Laboratory Review Checklist (continued): Supporting Data

Project Name: TCEQ - Rockwool Belton, TX	**Date:** 6/6/2014
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1405261

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within QC limits?	X				
		2) Were percent RSDs or correlation coefficient criteria met?	X				
		3) Was the number of standards recommended in the method used for all analytes?	X				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		5) Are ICAL data available for all instruments used?	X				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and Continuing calibration Verification (ICCV and CCV) and Continuing Calibration blank (CCB):**					
		1) Was the CCV analyzed at the method-required frequency?	X				
		2) Were percent differences for each analyte within the method-required QC limits?	X				
		3) Was the ICAL curve verified for each analyte?	X				
		4) Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	**Mass Spectral Tuning:**					
		1) Was the appropriate compound for the method used for tuning?	X				
		2) Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal Standards (IS):**					
		1) Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw Data (NELAC Section 5.5.10)**					
		1) Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		2) Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual Column Confirmation**					
		1) Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively Identified Compounds (TICs):**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) Results:**					
		1) Were percent recoveries within method QC limits?	X				
S9	I	**Serial Dilutions, Post Digestion Spikes, and Method of Standard Additions**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	**Method Detection Limit (MDL) Studies**					
		1) Was a MDL study performed for each reported analyte?	X				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency Test Reports:**					
		1) Was the lab's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards Documentation**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/Analyte Identification Procedures**					
		1) Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5 – Appendix C?	X				
		2) Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/Validation Documentation for Methods** (NELAC Chapter 5)					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory Standard Operating Procedures (SOPs):**					
		1) Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Data Package Signature Page – RG-366/TRRP-13

This data package consists of:

This signature page, the laboratory review checklist, and the following reportable data:

- R1 Field chain-of-custody documentation;
- R2 Sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5,
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- R4 Surrogate recovery data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - c) The laboratory's LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a) The amount of analyte measured in the duplicate,
  - b) The calculated RPD, and
  - c) The laboratory's QC limits for analytical duplicates.
- R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;
- R10 Other problems or anomalies.

The Exception Report for every "No" or "Not Reviewed (NR)" item in Laboratory Review checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information or data affecting the quality of the data has been knowingly withheld.

This laboratory was last inspected by TCEQ on May 6-10, 2013. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

John DuPont – General Manager

Scott Schroeder – Technical Director

Signature

06/06/14
Date

DHL Analytical, Inc. **Date:** *06-Jun-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Project: TCEQ - Rockwool Belton, TX
Lab Order: 1405261

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Method SW6020A - Metals Analysis

Exception Report R1-01

The samples were received and log-in performed on 5/22/2014. A total of 24 samples were received and analyzed. The samples arrived in good condition and were properly packaged.

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Project: TCEQ - Rockwool Belton, TX
Lab Order: 1405261

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1405261-01	MW-22		05/21/14 09:10 AM	5/22/2014
1405261-02	MW-37-90		05/21/14 09:51 AM	5/22/2014
1405261-03	MW-21		05/21/14 10:20 AM	5/22/2014
1405261-04	MW-38-90		05/21/14 10:44 AM	5/22/2014
1405261-05	MW-35-90		05/21/14 11:15 AM	5/22/2014
1405261-06	MW-10		05/21/14 12:00 PM	5/22/2014
1405261-07	MW-30-90		05/21/14 12:20 PM	5/22/2014
1405261-08	MW-29-90		05/21/14 12:50 PM	5/22/2014
1405261-09	MW-17		05/21/14 01:35 PM	5/22/2014
1405261-10	MW-33-90		05/21/14 02:10 PM	5/22/2014
1405261-11	MW-34-90		05/21/14 02:50 PM	5/22/2014
1405261-12	DUP-1		05/21/14	5/22/2014
1405261-13	DUP-2		05/21/14	5/22/2014
1405261-14	ER-1		05/21/14 05:00 PM	5/22/2014
1405261-15	MW-20		05/21/14 09:26 AM	5/22/2014
1405261-16	MW-11		05/21/14 10:15 AM	5/22/2014
1405261-17	MW-14		05/21/14 10:56 AM	5/22/2014
1405261-18	MW-7		05/21/14 11:54 AM	5/22/2014
1405261-19	MW-19		05/21/14 12:34 PM	5/22/2014
1405261-20	MW-24-90		05/21/14 01:11 PM	5/22/2014
1405261-21	MW-18		05/21/14 01:56 PM	5/22/2014
1405261-22	MW-27-90		05/21/14 03:11 PM	5/22/2014
1405261-23	MW-28-90		05/21/14 02:56 PM	5/22/2014
1405261-24	MW-9		05/21/14 03:41 PM	5/22/2014

Lab Order: 1405261
Client: D. B. Stephens & Assoc, Inc.
Project: TCEQ - Rockwool Belton, TX

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1405261-01A	MW-22	05/21/14 09:10 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-02A	MW-37-90	05/21/14 09:51 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-03A	MW-21	05/21/14 10:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-04A	MW-38-90	05/21/14 10:44 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
	MW-38-90	05/21/14 10:44 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-05A	MW-35-90	05/21/14 11:15 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
	MW-35-90	05/21/14 11:15 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-06A	MW-10	05/21/14 12:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-07A	MW-30-90	05/21/14 12:20 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-08A	MW-29-90	05/21/14 12:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-09A	MW-17	05/21/14 01:35 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-10A	MW-33-90	05/21/14 02:10 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-11A	MW-34-90	05/21/14 02:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-12A	DUP-1	05/21/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
	DUP-1	05/21/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-13A	DUP-2	05/21/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-14A	ER-1	05/21/14 05:00 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-15A	MW-20	05/21/14 09:26 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-16A	MW-11	05/21/14 10:15 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-17A	MW-14	05/21/14 10:56 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/30/14 08:29 AM	63877
1405261-18A	MW-7	05/21/14 11:54 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/30/14 08:29 AM	63877
1405261-19A	MW-19	05/21/14 12:34 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/30/14 08:29 AM	63877
1405261-20A	MW-24-90	05/21/14 01:11 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/30/14 08:29 AM	63877
1405261-21A	MW-18	05/21/14 01:56 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/30/14 08:29 AM	63877
1405261-22A	MW-27-90	05/21/14 03:11 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/30/14 08:29 AM	63877
1405261-23A	MW-28-90	05/21/14 02:56 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/30/14 08:29 AM	63877
1405261-24A	MW-9	05/21/14 03:41 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/30/14 08:29 AM	63877

Lab Order: 1405261
Client: D. B. Stephens & Assoc, Inc.
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1405261-01A	MW-22	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:24 PM	ICP-MS4_140529A
1405261-02A	MW-37-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:25 PM	ICP-MS4_140529A
1405261-03A	MW-21	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:14 PM	ICP-MS4_140529A
1405261-04A	MW-38-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:27 PM	ICP-MS4_140529A
	MW-38-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	10	05/29/14 01:59 PM	ICP-MS4_140529A
1405261-05A	MW-35-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:29 PM	ICP-MS4_140529A
	MW-35-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	10	05/29/14 02:01 PM	ICP-MS4_140529A
1405261-06A	MW-10	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:31 PM	ICP-MS4_140529A
1405261-07A	MW-30-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:33 PM	ICP-MS4_140529A
1405261-08A	MW-29-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:48 PM	ICP-MS4_140529A
1405261-09A	MW-17	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:50 PM	ICP-MS4_140529A
1405261-10A	MW-33-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:52 PM	ICP-MS4_140529A
1405261-11A	MW-34-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:54 PM	ICP-MS4_140529A
1405261-12A	DUP-1	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	10	05/29/14 02:03 PM	ICP-MS4_140529A
	DUP-1	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:56 PM	ICP-MS4_140529A
1405261-13A	DUP-2	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:58 PM	ICP-MS4_140529A
1405261-14A	ER-1	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 01:00 PM	ICP-MS4_140529A
1405261-15A	MW-20	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 01:01 PM	ICP-MS4_140529A
1405261-16A	MW-11	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 01:03 PM	ICP-MS4_140529A
1405261-17A	MW-14	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63877	1	06/02/14 09:20 PM	ICP-MS3_140602B
1405261-18A	MW-7	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63877	1	06/02/14 09:26 PM	ICP-MS3_140602B
1405261-19A	MW-19	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63877	1	06/02/14 09:32 PM	ICP-MS3_140602B
1405261-20A	MW-24-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63877	1	06/02/14 09:38 PM	ICP-MS3_140602B
1405261-21A	MW-18	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63877	1	06/02/14 09:44 PM	ICP-MS3_140602B
1405261-22A	MW-27-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63877	1	06/02/14 09:50 PM	ICP-MS3_140602B
1405261-23A	MW-28-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63877	1	06/02/14 09:56 PM	ICP-MS3_140602B
1405261-24A	MW-9	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63877	1	06/02/14 08:56 PM	ICP-MS3_140602B

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-22
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-01
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 09:10 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00218	0.000800	0.00250	J	mg/L V-RB	1	05/29/14 12:24 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	05/29/14 12:24 PM
Lead	0.000312	0.000300	0.00100	J	mg/L	1	05/29/14 12:24 PM
IS: Bismuth	94.0	0	70-200		%REC	1	05/29/14 12:24 PM
IS: Germanium	96.6	0	70-200		%REC	1	05/29/14 12:24 PM
IS: Indium	92.8	0	70-200		%REC	1	05/29/14 12:24 PM

MKT 6-26-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-37-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-02
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 09:51 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.000875	0.000800	0.00250	J	mg/L U-RB	1	05/29/14 12:25 PM
Arsenic	0.00901	0.00200	0.00500		mg/L	1	05/29/14 12:25 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 12:25 PM
IS: Bismuth	92.3	0	70-200		%REC	1	05/29/14 12:25 PM
IS: Germanium	95.9	0	70-200		%REC	1	05/29/14 12:25 PM
IS: Indium	94.2	0	70-200		%REC	1	05/29/14 12:25 PM

MKT 6-24-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-21
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-03
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 10:20 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.309	0.000800	0.00250		mg/L	1	05/29/14 12:14 PM
Arsenic	0.00596	0.00200	0.00500		mg/L	1	05/29/14 12:14 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 12:14 PM
IS: Bismuth	92.9	0	70-200		%REC	1	05/29/14 12:14 PM
IS: Germanium	95.2	0	70-200		%REC	1	05/29/14 12:14 PM
IS: Indium	93.4	0	70-200		%REC	1	05/29/14 12:14 PM

MK 6-26-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-38-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-04
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 10:44 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	2.21	0.00800	0.0250		mg/L	10	05/29/14 01:59 PM
Arsenic	0.00599	0.00200	0.00500		mg/L	1	05/29/14 12:27 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 12:27 PM
IS: Bismuth	92.7	0	70-200		%REC	1	05/29/14 12:27 PM
IS: Germanium	93.4	0	70-200		%REC	1	05/29/14 12:27 PM
IS: Indium	99.5	0	70-200		%REC	10	05/29/14 01:59 PM

NKT 6-26-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-35-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-05
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 11:15 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.985	0.00800	0.0250		mg/L	10	05/29/14 02:01 PM
Arsenic	0.0943	0.00200	0.00500		mg/L	1	05/29/14 12:29 PM
Lead	0.000506	0.000300	0.00100	J	mg/L	1	05/29/14 12:29 PM
IS: Bismuth	90.1	0	70-200		%REC	1	05/29/14 12:29 PM
IS: Germanium	92.8	0	70-200		%REC	1	05/29/14 12:29 PM
IS: Indium	98.4	0	70-200		%REC	10	05/29/14 02:01 PM

MKT 6-26-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-10
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-06
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 12:00 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	05/29/14 12:31 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	05/29/14 12:31 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 12:31 PM
IS: Bismuth	93.0	0	70-200		%REC	1	05/29/14 12:31 PM
IS: Germanium	94.1	0	70-200		%REC	1	05/29/14 12:31 PM
IS: Indium	92.2	0	70-200		%REC	1	05/29/14 12:31 PM

MK 6-29-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-30-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-07
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 12:20 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00151	0.000800	0.00250	J	mg/L U-RB	1	05/29/14 12:33 PM
Arsenic	0.00205	0.00200	0.00500	J	mg/L	1	05/29/14 12:33 PM
Lead	0.00586	0.000300	0.00100		mg/L	1	05/29/14 12:33 PM
IS: Bismuth	89.1	0	70-200		%REC	1	05/29/14 12:33 PM
IS: Germanium	91.8	0	70-200		%REC	1	05/29/14 12:33 PM
IS: Indium	90.2	0	70-200		%REC	1	05/29/14 12:33 PM

MK7 6-26-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-29-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-08
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 12:50 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0217	0.000800	0.00250		mg/L	1	05/29/14 12:48 PM
Arsenic	0.00275	0.00200	0.00500	J	mg/L	1	05/29/14 12:48 PM
Lead	0.00123	0.000300	0.00100		mg/L	1	05/29/14 12:48 PM
IS: Bismuth	93.8	0	70-200		%REC	1	05/29/14 12:48 PM
IS: Germanium	93.6	0	70-200		%REC	1	05/29/14 12:48 PM
IS: Indium	92.1	0	70-200		%REC	1	05/29/14 12:48 PM

MK7
6-26-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-17
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-09
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 01:35 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0427	0.000800	0.00250		mg/L	1	05/29/14 12:50 PM
Arsenic	0.00889	0.00200	0.00500		mg/L	1	05/29/14 12:50 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 12:50 PM
IS: Bismuth	92.9	0	70-200		%REC	1	05/29/14 12:50 PM
IS: Germanium	94.0	0	70-200		%REC	1	05/29/14 12:50 PM
IS: Indium	91.6	0	70-200		%REC	1	05/29/14 12:50 PM

MKT 6-26-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-33-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-10
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 02:10 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.126	0.000800	0.00250		mg/L	1	05/29/14 12:52 PM
Arsenic	0.0296	0.00200	0.00500		mg/L	1	05/29/14 12:52 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 12:52 PM
IS: Bismuth	94.2	0	70-200		%REC	1	05/29/14 12:52 PM
IS: Germanium	95.0	0	70-200		%REC	1	05/29/14 12:52 PM
IS: Indium	93.1	0	70-200		%REC	1	05/29/14 12:52 PM

MK 6-26-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-34-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-11
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 02:50 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.324	0.000800	0.00250		mg/L	1	05/29/14 12:54 PM
Arsenic	0.383	0.00200	0.00500		mg/L	1	05/29/14 12:54 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 12:54 PM
IS: Bismuth	93.1	0	70-200		%REC	1	05/29/14 12:54 PM
IS: Germanium	94.7	0	70-200		%REC	1	05/29/14 12:54 PM
IS: Indium	91.9	0	70-200		%REC	1	05/29/14 12:54 PM

MK7 6-26-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	DUP-1
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-12
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.985	0.00800	0.0250		mg/L	10	05/29/14 02:03 PM
Arsenic	0.0922	0.00200	0.00500		mg/L	1	05/29/14 12:56 PM
Lead	0.000525	0.000300	0.00100	J	mg/L	1	05/29/14 12:56 PM
IS: Bismuth	90.9	0	70-200		%REC	1	05/29/14 12:56 PM
IS: Germanium	92.9	0	70-200		%REC	1	05/29/14 12:56 PM
IS: Indium	97.0	0	70-200		%REC	10	05/29/14 02:03 PM

MH 6-26-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	DUP-2
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-13
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.329	0.000800	0.00250		mg/L	1	05/29/14 12:58 PM
Arsenic	0.377	0.00200	0.00500		mg/L	1	05/29/14 12:58 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 12:58 PM
IS: Bismuth	94.6	0	70-200		%REC	1	05/29/14 12:58 PM
IS: Germanium	94.6	0	70-200		%REC	1	05/29/14 12:58 PM
IS: Indium	92.3	0	70-200		%REC	1	05/29/14 12:58 PM

WKT 6-26-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	ER-1
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-14
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 05:00 PM
Lab Order:	1405261	**Matrix:**	EQUIP BLANK

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.000875	0.000800	0.00250	J	mg/L	1	05/29/14 01:00 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	05/29/14 01:00 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 01:00 PM
IS: Bismuth	99.5	0	70-200		%REC	1	05/29/14 01:00 PM
IS: Germanium	98.8	0	70-200		%REC	1	05/29/14 01:00 PM
IS: Indium	98.0	0	70-200		%REC	1	05/29/14 01:00 PM

MKT 6-26-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-20
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-15
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 09:26 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00193	0.000800	0.00250	J	mg/L U-RB	1	05/29/14 01:01 PM
Arsenic	0.00263	0.00200	0.00500	J	mg/L	1	05/29/14 01:01 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 01:01 PM
IS: Bismuth	92.8	0	70-200		%REC	1	05/29/14 01:01 PM
IS: Germanium	95.2	0	70-200		%REC	1	05/29/14 01:01 PM
IS: Indium	92.6	0	70-200		%REC	1	05/29/14 01:01 PM

NKT
6-26-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-11
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-16
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 10:15 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	05/29/14 01:03 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	05/29/14 01:03 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 01:03 PM
IS: Bismuth	92.8	0	70-200		%REC	1	05/29/14 01:03 PM
IS: Germanium	96.0	0	70-200		%REC	1	05/29/14 01:03 PM
IS: Indium	92.9	0	70-200		%REC	1	05/29/14 01:03 PM

MKT
6-26-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-14
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-17
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 10:56 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	06/02/14 09:20 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	06/02/14 09:20 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	06/02/14 09:20 PM
IS: Bismuth	89.0	0	70-200		%REC	1	06/02/14 09:20 PM
IS: Germanium	101	0	70-200		%REC	1	06/02/14 09:20 PM
IS: Indium	95.2	0	70-200		%REC	1	06/02/14 09:20 PM

MK7 6-26-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-7
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-18
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 11:54 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00133	0.000800	0.00250	J	mg/L V-RB	1	06/02/14 09:26 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	06/02/14 09:26 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	06/02/14 09:26 PM
IS: Bismuth	84.6	0	70-200		%REC	1	06/02/14 09:26 PM
IS: Germanium	98.5	0	70-200		%REC	1	06/02/14 09:26 PM
IS: Indium	93.2	0	70-200		%REC	1	06/02/14 09:26 PM

MKT 6-26-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-19
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-19
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 12:34 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00121	0.000800	0.00250	J	mg/L V-RB	1	06/02/14 09:32 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	06/02/14 09:32 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	06/02/14 09:32 PM
IS: Bismuth	82.5	0	70-200		%REC	1	06/02/14 09:32 PM
IS: Germanium	97.2	0	70-200		%REC	1	06/02/14 09:32 PM
IS: Indium	91.5	0	70-200		%REC	1	06/02/14 09:32 PM

MET 6-26-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-24-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-20
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 01:11 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0171	0.000800	0.00250		mg/L	1	06/02/14 09:38 PM
Arsenic	0.0122	0.00200	0.00500		mg/L	1	06/02/14 09:38 PM
Lead	0.000779	0.000300	0.00100	J	mg/L	1	06/02/14 09:38 PM
IS: Bismuth	80.1	0	70-200		%REC	1	06/02/14 09:38 PM
IS: Germanium	96.7	0	70-200		%REC	1	06/02/14 09:38 PM
IS: Indium	88.5	0	70-200		%REC	1	06/02/14 09:38 PM

NET
6-26-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-18
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-21
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 01:56 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00117	0.000800	0.00250	J	mg/L U-RB	1	06/02/14 09:44 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	06/02/14 09:44 PM
Lead	0.000982	0.000300	0.00100	J	mg/L	1	06/02/14 09:44 PM
IS: Bismuth	76.0	0	70-200		%REC	1	06/02/14 09:44 PM
IS: Germanium	91.0	0	70-200		%REC	1	06/02/14 09:44 PM
IS: Indium	85.9	0	70-200		%REC	1	06/02/14 09:44 PM

MK 6-26-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-27-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-22
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 03:11 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0554	0.000800	0.00250		mg/L	1	06/02/14 09:50 PM
Arsenic	0.00302	0.00200	0.00500	J	mg/L	1	06/02/14 09:50 PM
Lead	0.00194	0.000300	0.00100		mg/L	1	06/02/14 09:50 PM
IS: Bismuth	81.8	0	70-200		%REC	1	06/02/14 09:50 PM
IS: Germanium	92.4	0	70-200		%REC	1	06/02/14 09:50 PM
IS: Indium	92.7	0	70-200		%REC	1	06/02/14 09:50 PM

NLC 6-26-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-28-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-23
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 02:56 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0399	0.000800	0.00250		mg/L	1	06/02/14 09:56 PM
Arsenic	0.106	0.00200	0.00500		mg/L	1	06/02/14 09:56 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	06/02/14 09:56 PM
IS: Bismuth	71.2	0	70-200		%REC	1	06/02/14 09:56 PM
IS: Germanium	97.0	0	70-200		%REC	1	06/02/14 09:56 PM
IS: Indium	79.4	0	70-200		%REC	1	06/02/14 09:56 PM

NKT 6-26-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-9
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-24
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 03:41 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.237	0.000800	0.00250		mg/L	1	06/02/14 08:56 PM
Arsenic	0.0951	0.00200	0.00500		mg/L	1	06/02/14 08:56 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	06/02/14 08:56 PM
IS: Bismuth	95.2	0	70-200		%REC	1	06/02/14 08:56 PM
IS: Germanium	107	0	70-200		%REC	1	06/02/14 08:56 PM
IS: Indium	102	0	70-200		%REC	1	06/02/14 08:56 PM

MKT 6-26-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140523A

Sample ID	**DCS-63705-1**	Batch ID:	**63705**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**DCS**	Run ID:	**ICP-MS3_140523A**	Analysis Date:	**5/23/2014 12:47:00 PM**	Prep Date:	**5/22/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.000933	0.00250	0.00100	0	93.3	80	120	0	0	
Arsenic	0.000920	0.00500	0.00100	0	92.0	80	120	0	0	
Lead	0.000948	0.00100	0.00100	0	94.8	80	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140602B

The QC data in batch 63877 applies to the following samples: 1405261-17A, 1405261-18A, 1405261-19A, 1405261-20A, 1405261-21A, 1405261-22A, 1405261-23A, 1405261-24A

Sample ID **MB-63877** Batch ID: **63877** TestNo: **SW6020A** Units: **mg/L**
SampType: **MBLK** Run ID: **ICP-MS3_140602B** Analysis Date: **6/2/2014 8:26:00 PM** Prep Date: **5/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Lead	<0.000300	0.00100								
IS: Bismuth	0.200		0.200		106	70	200			
IS: Germanium	0.200		0.200		112	70	200			
IS: Indium	0.200		0.200		112	70	200			

Sample ID **LCS-63877** Batch ID: **63877** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCS** Run ID: **ICP-MS3_140602B** Analysis Date: **6/2/2014 8:38:00 PM** Prep Date: **5/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.181	0.00250	0.200	0	90.3	80	120			
Arsenic	0.192	0.00500	0.200	0	95.8	80	120			
Lead	0.196	0.00100	0.200	0	98.0	80	120			
IS: Bismuth	0.200		0.200		104	70	200			
IS: Germanium	0.200		0.200		112	70	200			
IS: Indium	0.200		0.200		109	70	200			

Sample ID **LCSD-63877** Batch ID: **63877** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS3_140602B** Analysis Date: **6/2/2014 8:44:00 PM** Prep Date: **5/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.182	0.00250	0.200	0	90.8	80	120	0.552	15	
Arsenic	0.195	0.00500	0.200	0	97.6	80	120	1.86	15	
Lead	0.193	0.00100	0.200	0	96.5	80	120	1.54	15	
IS: Bismuth	0.200		0.200		103	70	200	0	0	
IS: Germanium	0.200		0.200		110	70	200	0	0	
IS: Indium	0.200		0.200		108	70	200	0	0	

Sample ID **1405261-24A SD** Batch ID: **63877** TestNo: **SW6020A** Units: **mg/L**
SampType: **SD** Run ID: **ICP-MS3_140602B** Analysis Date: **6/2/2014 9:02:00 PM** Prep Date: **5/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.229	0.0125	0	0.237				3.44	10	
Arsenic	0.0931	0.0250	0	0.0951				2.17	10	
Lead	<0.00150	0.00500	0	0				0	10	
IS: Bismuth	1.00		0.200		99.0	70	200	0	0	
IS: Germanium	1.00		0.200		107	70	200	0	0	
IS: Indium	1.00		0.200		105	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140602B

Sample ID **1405261-24A PDS**	Batch ID: **63877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **PDS**	Run ID: **ICP-MS3_140602B**	Analysis Date: **6/2/2014 10:03:00 PM**	Prep Date: **5/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.407	0.00250	0.200	0.237	85.1	80	120			
Arsenic	0.303	0.00500	0.200	0.0951	104	80	120			
Lead	0.202	0.00100	0.200	0	101	80	120			
IS: Bismuth	0.200		0.200		76.4	70	200			
IS: Germanium	0.200		0.200		93.1	70	200			
IS: Indium	0.200		0.200		83.6	70	200			

Sample ID **1405261-24A MS**	Batch ID: **63877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MS**	Run ID: **ICP-MS3_140602B**	Analysis Date: **6/2/2014 10:09:00 PM**	Prep Date: **5/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.436	0.00250	0.200	0.237	99.6	80	120			
Arsenic	0.298	0.00500	0.200	0.0951	102	80	120			
Lead	0.197	0.00100	0.200	0	98.6	80	120			
IS: Bismuth	0.200		0.200		77.3	70	200			
IS: Germanium	0.200		0.200		89.4	70	200			
IS: Indium	0.200		0.200		84.5	70	200			

Sample ID **1405261-24A MSD**	Batch ID: **63877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MSD**	Run ID: **ICP-MS3_140602B**	Analysis Date: **6/2/2014 10:15:00 PM**	Prep Date: **5/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.451	0.00250	0.200	0.237	107	80	120	3.43	15	
Arsenic	0.312	0.00500	0.200	0.0951	108	80	120	4.26	15	
Lead	0.202	0.00100	0.200	0	101	80	120	2.35	15	
IS: Bismuth	0.200		0.200		78.4	70	200	0	0	
IS: Germanium	0.200		0.200		97.3	70	200	0	0	
IS: Indium	0.200		0.200		87.3	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140602B

Sample ID ICV1-140602	Batch ID: R73489	TestNo: SW6020A	Units: mg/L
SampType: ICV	Run ID: ICP-MS3_140602B	Analysis Date: 6/2/2014 12:41:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0922	0.00250	0.100	0	92.2	90	110			
Arsenic	0.0966	0.00500	0.100	0	96.6	90	110			
Lead	0.0971	0.00100	0.100	0	97.1	90	110			
IS: Bismuth	0.200		0.200		103	70	200			
IS: Germanium	0.200		0.200		96.8	70	200			
IS: Indium	0.200		0.200		95.9	70	200			

Sample ID ILCVL-140602	Batch ID: R73489	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS3_140602B	Analysis Date: 6/2/2014 12:54:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00179	0.00250	0.00200	0	89.4	70	130			
Arsenic	0.00476	0.00500	0.00500	0	95.2	70	130			
Lead	0.00101	0.00100	0.00100	0	101	70	130			
IS: Bismuth	0.200		0.200		101	70	200			
IS: Germanium	0.200		0.200		99.6	70	200			
IS: Indium	0.200		0.200		95.7	70	200			

Sample ID CCV4-140602	Batch ID: R73489	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS3_140602B	Analysis Date: 6/2/2014 7:31:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.187	0.00250	0.200	0	93.4	90	110			
Arsenic	0.201	0.00500	0.200	0	101	90	110			
Lead	0.202	0.00100	0.200	0	101	90	110			
IS: Bismuth	0.200		0.200		108	70	200			
IS: Germanium	0.200		0.200		115	70	200			
IS: Indium	0.200		0.200		114	70	200			

Sample ID LCVL4-140602	Batch ID: R73489	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS3_140602B	Analysis Date: 6/2/2014 8:07:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00171	0.00250	0.00200	0	85.4	70	130			
Arsenic	0.00485	0.00500	0.00500	0	96.9	70	130			
Lead	0.000977	0.00100	0.00100	0	97.7	70	130			
IS: Bismuth	0.200		0.200		106	70	200			
IS: Germanium	0.200		0.200		112	70	200			
IS: Indium	0.200		0.200		112	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140602B

Sample ID **CCV5-140602**	Batch ID: **R73489**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_140602B**	Analysis Date: **6/2/2014 10:21:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.195	0.00250	0.200	0	97.6	90	110			
Arsenic	0.210	0.00500	0.200	0	105	90	110			
Lead	0.198	0.00100	0.200	0	99.0	90	110			
IS: Bismuth	0.200		0.200		80.0	70	200			
IS: Germanium	0.200		0.200		93.3	70	200			
IS: Indium	0.200		0.200		86.2	70	200			

Sample ID **LCVL5-140602**	Batch ID: **R73489**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140602B**	Analysis Date: **6/2/2014 10:57:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00191	0.00250	0.00200	0	95.4	70	130			
Arsenic	0.00484	0.00500	0.00500	0	96.8	70	130			
Lead	0.000983	0.00100	0.00100	0	98.3	70	130			
IS: Bismuth	0.200		0.200		87.2	70	200			
IS: Germanium	0.200		0.200		98.4	70	200			
IS: Indium	0.200		0.200		92.9	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140522C

Sample ID	DCS-63705-1	Batch ID:	63705	TestNo:	SW6020A	Units:	mg/L
SampType:	DCS	Run ID:	ICP-MS4_140522C	Analysis Date:	5/22/2014 3:16:00 PM	Prep Date:	5/22/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.000949	0.00250	0.00100	0	94.9	80	120	0	0	
Arsenic	0.000937	0.00500	0.00100	0	93.7	80	120	0	0	
Lead	0.00103	0.00100	0.00100	0	103	80	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140529A

The QC data in batch 63830 applies to the following samples: 1405261-01A, 1405261-02A, 1405261-03A, 1405261-04A, 1405261-05A, 1405261-06A, 1405261-07A, 1405261-08A, 1405261-09A, 1405261-10A, 1405261-11A, 1405261-12A, 1405261-13A, 1405261-14A, 1405261-15A, 1405261-16A

Sample ID **MB-63830** Batch ID: **63830** TestNo: **SW6020A** Units: **mg/L**
SampType: **MBLK** Run ID: **ICP-MS4_140529A** Analysis Date: **5/29/2014 12:06:00 PM** Prep Date: **5/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Lead	<0.000300	0.00100								
IS: Bismuth	<0		0.200		98.0	70	200			
IS: Germanium	<0		0.200		98.3	70	200			
IS: Indium	<0		0.200		97.2	70	200			

Sample ID **LCS-63830** Batch ID: **63830** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCS** Run ID: **ICP-MS4_140529A** Analysis Date: **5/29/2014 12:08:00 PM** Prep Date: **5/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.193	0.00250	0.200	0	96.3	80	120			
Arsenic	0.187	0.00500	0.200	0	93.4	80	120			
Lead	0.196	0.00100	0.200	0	98.1	80	120			
IS: Bismuth	<0		0.200		95.0	70	200			
IS: Germanium	<0		0.200		94.6	70	200			
IS: Indium	<0		0.200		91.4	70	200			

Sample ID **LCSD-63830** Batch ID: **63830** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS4_140529A** Analysis Date: **5/29/2014 12:10:00 PM** Prep Date: **5/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.196	0.00250	0.200	0	97.8	80	120	1.56	15	
Arsenic	0.188	0.00500	0.200	0	93.8	80	120	0.339	15	
Lead	0.195	0.00100	0.200	0	97.6	80	120	0.456	15	
IS: Bismuth	<0		0.200		94.5	70	200	0	0	
IS: Germanium	<0		0.200		93.8	70	200	0	0	
IS: Indium	<0		0.200		90.8	70	200	0	0	

Sample ID **1405261-03A SD** Batch ID: **63830** TestNo: **SW6020A** Units: **mg/L**
SampType: **SD** Run ID: **ICP-MS4_140529A** Analysis Date: **5/29/2014 12:16:00 PM** Prep Date: **5/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.292	0.0125	0	0.309				5.83	10	
Arsenic	<0.0100	0.0250	0	0.00596				0	10	
Lead	<0.00150	0.00500	0	0				0	10	
IS: Bismuth	<0		0.200		97.0	70	200	0	0	
IS: Germanium	<0		0.200		98.6	70	200	0	0	
IS: Indium	<0		0.200		95.9	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140529A

Sample ID **1405261-03A PDS**	Batch ID: **63830**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **PDS**	Run ID: **ICP-MS4_140529A**	Analysis Date: **5/29/2014 12:35:00 PM**	Prep Date: **5/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.480	0.00250	0.200	0.309	85.5	80	120			
Arsenic	0.198	0.00500	0.200	0.00596	95.9	80	120			
Lead	0.206	0.00100	0.200	0	103	80	120			
IS: Bismuth	<0		0.200		92.9	70	200			
IS: Germanium	<0		0.200		92.2	70	200			
IS: Indium	<0		0.200		90.2	70	200			

Sample ID **1405261-03A MS**	Batch ID: **63830**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MS**	Run ID: **ICP-MS4_140529A**	Analysis Date: **5/29/2014 12:37:00 PM**	Prep Date: **5/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.505	0.00250	0.200	0.309	97.8	80	120			
Arsenic	0.194	0.00500	0.200	0.00596	94.0	80	120			
Lead	0.196	0.00100	0.200	0	97.9	80	120			
IS: Bismuth	<0		0.200		93.4	70	200			
IS: Germanium	<0		0.200		91.8	70	200			
IS: Indium	<0		0.200		88.7	70	200			

Sample ID **1405261-03A MSD**	Batch ID: **63830**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MSD**	Run ID: **ICP-MS4_140529A**	Analysis Date: **5/29/2014 12:39:00 PM**	Prep Date: **5/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.505	0.00250	0.200	0.309	98.0	80	120	0.068	15	
Arsenic	0.195	0.00500	0.200	0.00596	94.3	80	120	0.318	15	
Lead	0.201	0.00100	0.200	0	101	80	120	2.77	15	
IS: Bismuth	<0		0.200		91.4	70	200	0	0	
IS: Germanium	<0		0.200		91.9	70	200	0	0	
IS: Indium	<0		0.200		88.3	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140529A

Sample ID ICV-140529	Batch ID: R73425	TestNo: SW6020A	Units: mg/L
SampType: ICV	Run ID: ICP-MS4_140529A	Analysis Date: 5/29/2014 10:13:00 AM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0919	0.00250	0.100	0	91.9	90	110			
Arsenic	0.0942	0.00500	0.100	0	94.2	90	110			
Lead	0.0999	0.00100	0.100	0	99.9	90	110			
IS: Bismuth	<0		0.200		97.1	70	200			

Sample ID LCVL-140529	Batch ID: R73425	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS4_140529A	Analysis Date: 5/29/2014 10:17:00 AM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00174	0.00250	0.00200	0	87.2	70	130			
Arsenic	0.00466	0.00500	0.00500	0	93.2	70	130			
Lead	0.00105	0.00100	0.00100	0	105	70	130			
IS: Bismuth	<0		0.200		99.6	70	200			

Sample ID CCV3-140529	Batch ID: R73425	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS4_140529A	Analysis Date: 5/29/2014 11:59:00 AM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.195	0.00250	0.200	0	97.3	90	110			
Arsenic	0.191	0.00500	0.200	0	95.7	90	110			
Lead	0.203	0.00100	0.200	0	102	90	110			
IS: Bismuth	<0		0.200		97.3	70	200			
IS: Germanium	<0		0.200		97.5	70	200			
IS: Indium	<0		0.200		94.9	70	200			

Sample ID LCVL3-140529	Batch ID: R73425	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS4_140529A	Analysis Date: 5/29/2014 12:02:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00176	0.00250	0.00200	0	88.1	70	130			
Arsenic	0.00447	0.00500	0.00500	0	89.4	70	130			
Lead	0.000992	0.00100	0.00100	0	99.2	70	130			
IS: Bismuth	<0		0.200		97.2	70	200			
IS: Germanium	<0		0.200		97.5	70	200			
IS: Indium	<0		0.200		95.5	70	200			

Sample ID CCV4-140529	Batch ID: R73425	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS4_140529A	Analysis Date: 5/29/2014 12:40:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.200	0.00250	0.200	0	99.8	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140529A

Sample ID CCV4-140529	Batch ID: R73425	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS4_140529A	Analysis Date: 5/29/2014 12:40:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.192	0.00500	0.200	0	96.2	90	110			
Lead	0.202	0.00100	0.200	0	101	90	110			
IS: Bismuth	<0		0.200		95.5	70	200			
IS: Germanium	<0		0.200		93.0	70	200			
IS: Indium	<0		0.200		90.6	70	200			

Sample ID LCVL4-140529	Batch ID: R73425	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS4_140529A	Analysis Date: 5/29/2014 12:44:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00179	0.00250	0.00200	0	89.4	70	130			
Arsenic	0.00452	0.00500	0.00500	0	90.4	70	130			
Lead	0.000986	0.00100	0.00100	0	98.6	70	130			
IS: Bismuth	<0		0.200		98.2	70	200			
IS: Germanium	<0		0.200		95.9	70	200			
IS: Indium	<0		0.200		94.2	70	200			

Sample ID CCV5-140529	Batch ID: R73425	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS4_140529A	Analysis Date: 5/29/2014 1:07:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.201	0.00250	0.200	0	100	90	110			
Arsenic	0.193	0.00500	0.200	0	96.7	90	110			
Lead	0.199	0.00100	0.200	0	99.5	90	110			
IS: Bismuth	<0		0.200		101	70	200			
IS: Germanium	<0		0.200		99.4	70	200			
IS: Indium	<0		0.200		98.7	70	200			

Sample ID LCVL5-140529	Batch ID: R73425	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS4_140529A	Analysis Date: 5/29/2014 1:11:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00188	0.00250	0.00200	0	93.9	70	130			
Arsenic	0.00462	0.00500	0.00500	0	92.4	70	130			
Lead	0.00107	0.00100	0.00100	0	107	70	130			
IS: Bismuth	<0		0.200		98.4	70	200			
IS: Germanium	<0		0.200		99.8	70	200			
IS: Indium	<0		0.200		98.2	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140529A

Sample ID CCV6-140529	Batch ID: R73425	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS4_140529A	Analysis Date: 5/29/2014 1:51:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.203	0.00250	0.200	0	101	90	110			
IS: Indium	<0		0.200		97.8	70	200			

Sample ID LCVL6-140529	Batch ID: R73425	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS4_140529A	Analysis Date: 5/29/2014 1:55:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00174	0.00250	0.00200	0	87.1	70	130			
IS: Indium	<0		0.200		99.2	70	200			

Sample ID CCV7-140529	Batch ID: R73425	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS4_140529A	Analysis Date: 5/29/2014 2:05:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.200	0.00250	0.200	0	99.9	90	110			
IS: Indium	<0		0.200		95.9	70	200			

Sample ID LCVL7-140529	Batch ID: R73425	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS4_140529A	Analysis Date: 5/29/2014 2:09:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00170	0.00250	0.00200	0	85.0	70	130			
IS: Indium	<0		0.200		97.3	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

MQL SUMMARY REPORT

TestNo: SW6020A	MDL	MQL
Analyte	**mg/L**	**mg/L**
Antimony	0.000800	0.00250
Arsenic	0.00200	0.00500
Lead	0.000300	0.00100

Qualifiers: MQL -Method Quantitation Limit as defined by TRRP
MDL -Method Detection Limit as defined by TRRP

DHL ANALYTICAL

August 05, 2014

Paul Kirby
D. B. Stephens & Assoc, Inc.
4030 W Braker #325
Austin, Texas 78759
TEL: (512) 821-2765
FAX

Order No.: 1407278

RE: Rockwool Belton, TX

Dear Paul Kirby:

DHL Analytical, Inc. received 24 sample(s) on 7/23/2014 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-13-11

ACCREDITED IN ACCORDANCE WITH nelac

Table of Contents

DHL ANALYTICAL

2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 62645

CHAIN-OF-CUSTODY

CLIENT: DBSA
ADDRESS: 4030 west Braker lane Ste 325 Austin Tx
PHONE: 512-821-2765 FAX/E-MAIL: bcamacho@dbstephens.com
DATA REPORTED TO: Ben Camacho bcamacho@dbstephens.com
ADDITIONAL REPORT COPIES TO: invoice to esmith@dbstephens.com

DATE: 7/22/14 PAGE 1 OF 2
PO #: 015593 DHL WORK ORDER #: 1407278
PROJECT LOCATION OR NAME: Rockwool, Belton Tx
CLENT PROJECT #: ES14.AIR0.12 COLLECTOR: Ben Camacho

Authorize 5% surcharge for TRRP Report? ☐ Yes ☒ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID

PRESERVATION: HCl, HNO_3, H_2SO_4 ☐ NaOH ☐, ICE, UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ [METHOD 8021]; TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐; GRO [METHOD 8015] ☐ DRO [METHOD 8015] ☐; VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐; SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐; 8081 PEST ☐ 608 PEST/PCB ☐ 8270 PEST ☐; 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐; 8321 HERB ☐ 8330 EXPL ☐ PERCHLORATE ☐; METALS 6020 ☒ METALS 200.8 ☐ DISS. METALS ☐; RCRA ☐ TX11 ☐; PH ☐ HEX CHROM ☐ ALKALINITY ☐; CHLORIDE ☐ ANIONS ☐; TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐; TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐; RCI ☐ TOX ☐ FLASHPOINT ☐; TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4/NaOH	ICE	UNPRESERVED	METALS 6020	FIELD NOTES
MW-22	01	7/22/14	945	W	250mL	1		X		X		X	
MW-37-90	02	7/22/14	1025	W	250mL	1		X		X		X	
MW-21	03	7/22/14	1100	W	250mL	3		X		X		X	Matrix Spike/ Matrix Spike dup
MW-38-90	04	7/22/14	1140	W	250mL	1		X		X		X	
MW-35-90	05	7/22/14	1230	W	250mL	1		X		X		X	
MW-10	06	7/22/14	1330	W	250mL	1		X		X		X	
MW-30-90	07	7/22/14	1410	W	250mL	1		X		X		X	
MW-29-90	08	7/22/14	1450	W	250mL	1		X		X		X	
MW-17	09	7/22/14	1530	W	250mL	1		X		X		X	
MW-33-90	10	7/22/14	1610	W	250mL	1		X		X		X	
MW-34-90	11	7/22/14	1700	W	250mL	1		X		X		X	
Dup-1	12	—	—	W	250mL	1		X		X		X	
Dup-2	13	—	—	W	250mL	1		X		X		X	
ER-1	14	7/22/14	1830	W	250mL	1		X		X		X	
TOTAL						16							

RELINQUISHED BY: (Signature) Ben Camacho [signature] DATE/TIME 7/23/14 1547 RECEIVED BY: (Signature) [signature]
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☒ DHL DISPOSAL @ $5.00 each ☐ Return 3

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 2.7/3.6 THERM #: 57
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL #:
☐ APC DELIVERY
☒ HAND DELIVERED

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 62646

CHAIN-OF-CUSTODY

CLIENT: DBSA
ADDRESS: 4030 W. Braker lane Ste 325 Austin TX
PHONE: 512-821-2765 FAX/E-MAIL: bcamacho@dbstephens.com
DATA REPORTED TO: Ben Camacho bCamacho@dbstephens.com
ADDITIONAL REPORT COPIES TO: esmith@dbstephens.com

DATE: 7/22/14 PAGE 2 OF 2
PO #: 019593 DHL WORK ORDER #: 140728
PROJECT LOCATION OR NAME: Rockwool Belton, TX
CLENT PROJECT #: ES14.AIR0,12 COLLECTOR: Ben Camacho

Authorize 5% surcharge for TRRP Report? ☐ Yes ☑ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID

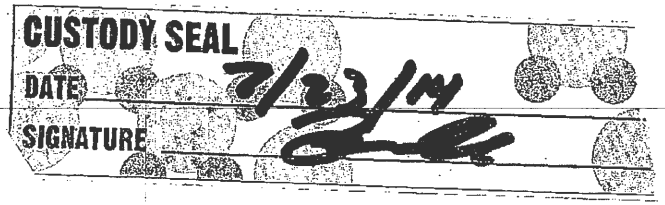
Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: 8260	FIELD NOTES
MW-20	15	7/22/14	1005	W	250mL	1		X		X		X	
MW-11	16	7/22/14	1226	W	250mL	1		X		X		X	
MW-14	17	7/22/14	1325	W	250mL	1		X		X		X	
MW-7	18	7/22/14	1415	W	250mL	1		X		X		X	
MW-19	19	7/22/14	1500	W	250mL	1		X		X		X	
MW-24-90	20	7/22/14	1520	W	250mL	1		X		X		X	
MW-18	21	7/22/14	1603	W	250mL	1		X		X		X	
MW-27-90	22	7/22/14	1625	W	250mL	1		X		X		X	
MW-28-90	23	7/22/14	1655	W	250mL	1		X		X		X	
MW-9	24	7/22/14	1116	W	250mL	1		X		X		X	
TOTAL						10							

RELINQUISHED BY: (Signature) Ben Camacho DATE/TIME 7/23/14 15:47 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☒ DHL DISPOSAL @ $5.00 each ☐ Return 4

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 2.7/3.6 THERM #: 57
CUSTODY SEALS: ☐ BROKEN ☑ INTACT ☐ NOT USED
☐ CARRIER BILL #: _____
☐ APC DELIVERY
☑ HAND DELIVERED


CUSTODY SEAL
DATE 7/23/14
SIGNATURE


QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900


CUSTODY SEAL
DATE 7/23/14
SIGNATURE


QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name D. B. Stephens & Assoc, Inc. Date Received: 7/23/2014

Work Order Number 1407278 Received by MD

Checklist completed by: Signature 7/23/2014 Date Reviewed by Initials 7/23/2014 Date

Carrier name Hand Delivered

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	2.7 °C, 3.1e
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 8086
	Adjusted? NO		Checked by
Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted?		Checked by

Any No response must be detailed in the comments section below.

Client contacted Date contacted: Person contacted

Contacted by: Regarding

Comments:

Corrective Action

DHL Analytical, Inc.
Laboratory Review Checklist: Reportable Data

Project Name: Rockwool Belton, TX	**Date:** 8/5/14
Reviewer Name: Carlos Castro	**Laboratory Work Order:** 1407278
Prep Batch Number(s): See Prep Dates Report	**Run Batch:** See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-Custody (C-O-C)					
R1	OI	1) Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				R1-01
		2) Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and Quality Control (QC) Identification**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test Reports**					
		1) Were all samples prepared and analyzed within holding times?	X				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		3) Were calculations checked by a peer or supervisor?	X				
		4) Were all analyte identifications checked by a peer or supervisor?	X				
		5) Were sample detection limits reported for all analytes not detected?	X				
		6) Were all results for soil and sediment samples reported on a dry weight basis?			X		
		7) Were % moisture (or solids) reported for all soil and sediment samples?			X		
		8) Were bulk soils/solids samples for volatile analysis extracted with methanol per EPA Method 5035?			X		
		9) If required for the project, TICs reported?			X		
R4	O	**Surrogate Recovery Data**					
		1) Were surrogates added prior to extraction?			X		
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		1) Were appropriate type(s) of blanks analyzed?	X				
		2) Were blanks analyzed at the appropriate frequency?	X				
		3) Where method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		4) Were blank concentrations < MQL?	X				
R6	OI	**Laboratory Control Samples (LCS):**					
		1) Were all COCs included in the LCS?	X				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		3) Were LCSs analyzed at the required frequency?	X				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		6) Was the LCSD RPD within QC limits (if applicable)?	X				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Data**					
		1) Were the project/method specified analytes included in the MS and MSD?	X				
		2) Were MS/MSD analyzed at the appropriate frequency?	X				
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		4) Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?			X		
		2) Were analytical duplicates analyzed at the appropriate frequency?			X		
		3) Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	X				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		3) Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		3) Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

DHL Analytical, Inc.
Laboratory Review Checklist (continued): Supporting Data

Project Name: Rockwool Belton, TX	**Date:** 8/5/14
Reviewer Name: Carlos Castro	**Laboratory Work Order:** 1407278

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within QC limits?	X				
		2) Were percent RSDs or correlation coefficient criteria met?	X				
		3) Was the number of standards recommended in the method used for all analytes?	X				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		5) Are ICAL data available for all instruments used?	X				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and Continuing calibration Verification (ICCV and CCV) and Continuing Calibration blank (CCB):**					
		1) Was the CCV analyzed at the method-required frequency?	X				
		2) Were percent differences for each analyte within the method-required QC limits?	X				
		3) Was the ICAL curve verified for each analyte?	X				
		4) Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	**Mass Spectral Tuning:**					
		1) Was the appropriate compound for the method used for tuning?	X				
		2) Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal Standards (IS):**					
		1) Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw Data (NELAC Section 5.5.10)**					
		1) Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		2) Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual Column Confirmation**					
		1) Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively Identified Compounds (TICs):**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) Results:**					
		1) Were percent recoveries within method QC limits?	X				
S9	I	**Serial Dilutions, Post Digestion Spikes, and Method of Standard Additions**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?		X			S9-01
S10	OI	**Method Detection Limit (MDL) Studies**					
		1) Was a MDL study performed for each reported analyte?	X				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency Test Reports:**					
		1) Was the lab's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards Documentation**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/Analyte Identification Procedures**					
		1) Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5 – Appendix C?	X				
		2) Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/Validation Documentation for Methods** (NELAC Chapter 5)					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory Standard Operating Procedures (SOPs):**					
		1) Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Data Package Signature Page – RG-366/TRRP-13

This data package consists of:

This signature page, the laboratory review checklist, and the following reportable data:

- R1 Field chain-of-custody documentation;
- R2 Sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5,
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- R4 Surrogate recovery data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - c) The laboratory's LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a) The amount of analyte measured in the duplicate,
  - b) The calculated RPD, and
  - c) The laboratory's QC limits for analytical duplicates.
- R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;
- R10 Other problems or anomalies.

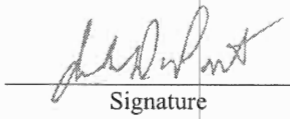
The Exception Report for every "No" or "Not Reviewed (NR)" item in Laboratory Review checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information or data affecting the quality of the data has been knowingly withheld.

This laboratory was last inspected by TCEQ on May 6-10, 2013. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

John DuPont – General Manager

Scott Schroeder – Technical Director



Signature

08/05/14

Date

DHL Analytical, Inc. **Date:** *05-Aug-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Belton, TX
Lab Order: 1407278

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Method SW6020A - Metals Analysis

Exception Report R1-01

The samples were received and log-in performed on 7/23/14. A total of 24 samples were received. The samples arrived in good condition and were properly packaged.

Exception Report S9-01

For Metals analysis performed on 8/1/14 (batch 64976) the RPD for the serial dilution was slightly above control limits for Lead. This is flagged accordingly in the QC summary report. The PDS was within control limits for this analyte. No further corrective actions were taken.

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Belton, TX
Lab Order: 1407278

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1407278-01	MW-22		07/22/14 09:45 AM	7/23/2014
1407278-02	MW-37-90		07/22/14 10:25 AM	7/23/2014
1407278-03	MW-21		07/22/14 11:00 AM	7/23/2014
1407278-04	MW-38-90		07/22/14 11:40 AM	7/23/2014
1407278-05	MW-35-90		07/22/14 12:30 PM	7/23/2014
1407278-06	MW10		07/22/14 01:30 PM	7/23/2014
1407278-07	MW-30-90		07/22/14 02:10 PM	7/23/2014
1407278-08	MW-29-90		07/22/14 02:50 PM	7/23/2014
1407278-09	MW-17		07/22/14 03:30 PM	7/23/2014
1407278-10	MW-33-90		07/22/14 04:10 PM	7/23/2014
1407278-11	MW-34-90		07/22/14 05:00 PM	7/23/2014
1407278-12	DUP-1		07/22/14	7/23/2014
1407278-13	DUP-2		07/22/14	7/23/2014
1407278-14	ER-1		07/22/14 06:30 PM	7/23/2014
1407278-15	MW-20		07/22/14 10:05 AM	7/23/2014
1407278-16	MW-11		07/22/14 12:26 PM	7/23/2014
1407278-17	MW-14		07/22/14 01:25 PM	7/23/2014
1407278-18	MW-7		07/22/14 02:15 PM	7/23/2014
1407278-19	MW-19		07/22/14 03:00 PM	7/23/2014
1407278-20	MW-24-90		07/22/14 03:20 PM	7/23/2014
1407278-21	MW-18		07/22/14 04:03 PM	7/23/2014
1407278-22	MW-27-90		07/22/14 04:25 PM	7/23/2014
1407278-23	MW-28-90		07/22/14 04:55 PM	7/23/2014
1407278-24	MW-9		07/22/14 11:16 AM	7/23/2014

DHL Analytical, Inc.

05-Aug-14

Lab Order: 1407278
Client: D. B. Stephens & Assoc, Inc.
Project: Rockwool Belton, TX

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1407278-01A	MW-22	07/22/14 09:45 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-02A	MW-37-90	07/22/14 10:25 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-03A	MW-21	07/22/14 11:00 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-04A	MW-38-90	07/22/14 11:40 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-05A	MW-35-90	07/22/14 12:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
	MW-35-90	07/22/14 12:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-06A	MW10	07/22/14 01:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-07A	MW-30-90	07/22/14 02:10 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-08A	MW-29-90	07/22/14 02:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-09A	MW-17	07/22/14 03:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-10A	MW-33-90	07/22/14 04:10 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-11A	MW-34-90	07/22/14 05:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-12A	DUP-1	07/22/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
	DUP-1	07/22/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-13A	DUP-2	07/22/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-14A	ER-1	07/22/14 06:30 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	07/30/14 09:59 AM	64943
1407278-15A	MW-20	07/22/14 10:05 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/30/14 09:59 AM	64943
1407278-16A	MW-11	07/22/14 12:26 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/30/14 09:59 AM	64943
1407278-17A	MW-14	07/22/14 01:25 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/30/14 09:59 AM	64943
1407278-18A	MW-7	07/22/14 02:15 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/30/14 09:59 AM	64943
1407278-19A	MW-19	07/22/14 03:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/30/14 09:59 AM	64943
1407278-20A	MW-24-90	07/22/14 03:20 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/30/14 09:59 AM	64943
1407278-21A	MW-18	07/22/14 04:03 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/30/14 09:59 AM	64943
1407278-22A	MW-27-90	07/22/14 04:25 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/30/14 09:59 AM	64943
1407278-23A	MW-28-90	07/22/14 04:55 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/30/14 09:59 AM	64943
1407278-24A	MW-9	07/22/14 11:16 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/30/14 09:59 AM	64943

Lab Order: 1407278
Client: D. B. Stephens & Assoc, Inc.
Project: Rockwool Belton, TX

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1407278-01A	MW-22	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 09:00 PM	ICP-MS3_140801A
1407278-02A	MW-37-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 09:06 PM	ICP-MS3_140801A
1407278-03A	MW-21	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 08:48 PM	ICP-MS3_140801A
1407278-04A	MW-38-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 09:12 PM	ICP-MS3_140801A
1407278-05A	MW-35-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 09:19 PM	ICP-MS3_140801A
	MW-35-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	10	08/04/14 02:28 PM	ICP-MS3_140804B
1407278-06A	MW10	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 09:25 PM	ICP-MS3_140801A
1407278-07A	MW-30-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 09:31 PM	ICP-MS3_140801A
1407278-08A	MW-29-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 09:37 PM	ICP-MS3_140801A
1407278-09A	MW-17	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 09:43 PM	ICP-MS3_140801A
1407278-10A	MW-33-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 09:49 PM	ICP-MS3_140801A
1407278-11A	MW-34-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 11:38 PM	ICP-MS3_140801A
1407278-12A	DUP-1	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	10	08/04/14 02:34 PM	ICP-MS3_140804B
	DUP-1	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 11:44 PM	ICP-MS3_140801A
1407278-13A	DUP-2	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 11:50 PM	ICP-MS3_140801A
1407278-14A	ER-1	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	64943	1	08/01/14 12:33 PM	ICP-MS4_140801A
1407278-15A	MW-20	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64943	1	08/01/14 12:35 PM	ICP-MS4_140801A
1407278-16A	MW-11	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64943	1	08/01/14 12:37 PM	ICP-MS4_140801A
1407278-17A	MW-14	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64943	1	08/01/14 01:04 PM	ICP-MS4_140801A
1407278-18A	MW-7	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64943	1	08/01/14 01:06 PM	ICP-MS4_140801A
1407278-19A	MW-19	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64943	1	08/01/14 01:08 PM	ICP-MS4_140801A
1407278-20A	MW-24-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64943	1	08/01/14 01:10 PM	ICP-MS4_140801A
1407278-21A	MW-18	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64943	1	08/01/14 01:12 PM	ICP-MS4_140801A
1407278-22A	MW-27-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64943	1	08/01/14 01:13 PM	ICP-MS4_140801A
1407278-23A	MW-28-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64943	1	08/01/14 01:15 PM	ICP-MS4_140801A
1407278-24A	MW-9	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64943	1	08/01/14 01:17 PM	ICP-MS4_140801A

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-22
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-01
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 09:45 AM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.00188	0.000800	0.00250	J	mg/L	1	08/01/14 09:00 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	08/01/14 09:00 PM
Lead J1 - DL	0.000573	0.000300	0.00100	J	mg/L	1	08/01/14 09:00 PM
IS: Bismuth	89.8	0	70-200		%REC	1	08/01/14 09:00 PM
IS: Germanium	106	0	70-200		%REC	1	08/01/14 09:00 PM
IS: Indium	95.7	0	70-200		%REC	1	08/01/14 09:00 PM

MK1 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-37-90
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-02
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 10:25 AM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.00116	0.000800	0.00250	J	mg/L	1	08/01/14 09:06 PM
Arsenic	0.0118	0.00200	0.00500		mg/L	1	08/01/14 09:06 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	08/01/14 09:06 PM
IS: Bismuth	91.3	0	70-200		%REC	1	08/01/14 09:06 PM
IS: Germanium	108	0	70-200		%REC	1	08/01/14 09:06 PM
IS: Indium	96.5	0	70-200		%REC	1	08/01/14 09:06 PM

MC 8.8.14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-21
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-03
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 11:00 AM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.218	0.000800	0.00250		mg/L	1	08/01/14 08:48 PM
Arsenic	0.00778	0.00200	0.00500		mg/L	1	08/01/14 08:48 PM
Lead J1-DL	0.00161	0.000300	0.00100		mg/L	1	08/01/14 08:48 PM
IS: Bismuth	92.4	0	70-200		%REC	1	08/01/14 08:48 PM
IS: Germanium	108	0	70-200		%REC	1	08/01/14 08:48 PM
IS: Indium	98.0	0	70-200		%REC	1	08/01/14 08:48 PM

NKT 8.8.14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-38-90
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-04
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 11:40 AM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.303	0.000800	0.00250		mg/L	1	08/01/14 09:12 PM
Arsenic	0.00737	0.00200	0.00500		mg/L	1	08/01/14 09:12 PM
Lead J1 - DL	0.000703	0.000300	0.00100	J	mg/L	1	08/01/14 09:12 PM
IS: Bismuth	89.5	0	70-200		%REC	1	08/01/14 09:12 PM
IS: Germanium	105	0	70-200		%REC	1	08/01/14 09:12 PM
IS: Indium	94.8	0	70-200		%REC	1	08/01/14 09:12 PM

MK 8.9.14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-35-90
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-05
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 12:30 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.524	0.00800	0.0250		mg/L	10	08/04/14 02:28 PM
Arsenic	0.0826	0.00200	0.00500		mg/L	1	08/01/14 09:19 PM
Lead J1-DL	0.00157	0.000300	0.00100		mg/L	1	08/01/14 09:19 PM
IS: Bismuth	86.3	0	70-200		%REC	1	08/01/14 09:19 PM
IS: Germanium	104	0	70-200		%REC	1	08/01/14 09:19 PM
IS: Indium	94.8	0	70-200		%REC	10	08/04/14 02:28 PM

NKT 8.8.14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW10
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-06
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 01:30 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.000924	0.000800	0.00250	J	mg/L	1	08/01/14 09:25 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	08/01/14 09:25 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	08/01/14 09:25 PM
IS: Bismuth	92.1	0	70-200		%REC	1	08/01/14 09:25 PM
IS: Germanium	108	0	70-200		%REC	1	08/01/14 09:25 PM
IS: Indium	97.2	0	70-200		%REC	1	08/01/14 09:25 PM

8.8.14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-30-90
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-07
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 02:10 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.00152	0.000800	0.00250	J	mg/L	1	08/01/14 09:31 PM
Arsenic	0.00372	0.00200	0.00500	J	mg/L	1	08/01/14 09:31 PM
Lead J1-DL	0.0107	0.000300	0.00100		mg/L	1	08/01/14 09:31 PM
IS: Bismuth	86.0	0	70-200		%REC	1	08/01/14 09:31 PM
IS: Germanium	101	0	70-200		%REC	1	08/01/14 09:31 PM
IS: Indium	91.6	0	70-200		%REC	1	08/01/14 09:31 PM

MK 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-29-90
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-08
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 02:50 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.0274	0.000800	0.00250		mg/L	1	08/01/14 09:37 PM
Arsenic	0.00763	0.00200	0.00500		mg/L	1	08/01/14 09:37 PM
Lead J1-DL	0.00235	0.000300	0.00100		mg/L	1	08/01/14 09:37 PM
IS: Bismuth	85.2	0	70-200		%REC	1	08/01/14 09:37 PM
IS: Germanium	99.4	0	70-200		%REC	1	08/01/14 09:37 PM
IS: Indium	89.6	0	70-200		%REC	1	08/01/14 09:37 PM

NK 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-17
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-09
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 03:30 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.0354	0.000800	0.00250		mg/L	1	08/01/14 09:43 PM
Arsenic	0.0137	0.00200	0.00500		mg/L	1	08/01/14 09:43 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	08/01/14 09:43 PM
IS: Bismuth	88.9	0	70-200		%REC	1	08/01/14 09:43 PM
IS: Germanium	102	0	70-200		%REC	1	08/01/14 09:43 PM
IS: Indium	93.7	0	70-200		%REC	1	08/01/14 09:43 PM

MKT
8-8-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-33-90
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-10
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 04:10 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.140	0.000800	0.00250		mg/L	1	08/01/14 09:49 PM
Arsenic	0.0260	0.00200	0.00500		mg/L	1	08/01/14 09:49 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	08/01/14 09:49 PM
IS: Bismuth	91.0	0	70-200		%REC	1	08/01/14 09:49 PM
IS: Germanium	103	0	70-200		%REC	1	08/01/14 09:49 PM
IS: Indium	95.8	0	70-200		%REC	1	08/01/14 09:49 PM

NKT
8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-34-90
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-11
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 05:00 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.314	0.000800	0.00250		mg/L	1	08/01/14 11:38 PM
Arsenic	0.433	0.00200	0.00500		mg/L	1	08/01/14 11:38 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	08/01/14 11:38 PM
IS: Bismuth	87.8	0	70-200		%REC	1	08/01/14 11:38 PM
IS: Germanium	103	0	70-200		%REC	1	08/01/14 11:38 PM
IS: Indium	94.0	0	70-200		%REC	1	08/01/14 11:38 PM

MK 8.8.14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	DUP-1
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-12
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.516	0.00800	0.0250		mg/L	10	08/04/14 02:34 PM
Arsenic	0.0835	0.00200	0.00500		mg/L	1	08/01/14 11:44 PM
Lead J1-DL	0.00169	0.000300	0.00100		mg/L	1	08/01/14 11:44 PM
IS: Bismuth	82.9	0	70-200		%REC	1	08/01/14 11:44 PM
IS: Germanium	104	0	70-200		%REC	1	08/01/14 11:44 PM
IS: Indium	94.3	0	70-200		%REC	10	08/04/14 02:34 PM

MK 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	DUP-2
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-13
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.318	0.000800	0.00250		mg/L	1	08/01/14 11:50 PM
Arsenic	0.424	0.00200	0.00500		mg/L	1	08/01/14 11:50 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	08/01/14 11:50 PM
IS: Bismuth	85.1	0	70-200		%REC	1	08/01/14 11:50 PM
IS: Germanium	103	0	70-200		%REC	1	08/01/14 11:50 PM
IS: Indium	90.9	0	70-200		%REC	1	08/01/14 11:50 PM

MC 8-8-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	ER-1
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-14
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 06:30 PM
Lab Order:	1407278	**Matrix:**	EQUIP BLANK

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **RO**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	08/01/14 12:33 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	08/01/14 12:33 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	08/01/14 12:33 PM
IS: Bismuth	102	0	70-200		%REC	1	08/01/14 12:33 PM
IS: Germanium	95.2	0	70-200		%REC	1	08/01/14 12:33 PM
IS: Indium	98.4	0	70-200		%REC	1	08/01/14 12:33 PM

NKT 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-20
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-15
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 10:05 AM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **RO**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	08/01/14 12:35 PM
Arsenic	0.00254	0.00200	0.00500	J	mg/L	1	08/01/14 12:35 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	08/01/14 12:35 PM
IS: Bismuth	93.3	0	70-200		%REC	1	08/01/14 12:35 PM
IS: Germanium	90.6	0	70-200		%REC	1	08/01/14 12:35 PM
IS: Indium	93.1	0	70-200		%REC	1	08/01/14 12:35 PM

NKT 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-11
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-16
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 12:26 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **RO**
Antimony	0.00168	0.000800	0.00250	J	mg/L	1	08/01/14 12:37 PM
Arsenic	0.00581	0.00200	0.00500		mg/L	1	08/01/14 12:37 PM
Lead	0.00900	0.000300	0.00100		mg/L	1	08/01/14 12:37 PM
IS: Bismuth	93.4	0	70-200		%REC	1	08/01/14 12:37 PM
IS: Germanium	92.6	0	70-200		%REC	1	08/01/14 12:37 PM
IS: Indium	94.1	0	70-200		%REC	1	08/01/14 12:37 PM

MKT 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-14
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-17
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 01:25 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **RO**
Antimony	0.00357	0.000800	0.00250		mg/L	1	08/01/14 01:04 PM
Arsenic	0.00230	0.00200	0.00500	J	mg/L	1	08/01/14 01:04 PM
Lead	0.000356	0.000300	0.00100	J	mg/L	1	08/01/14 01:04 PM
IS: Bismuth	91.2	0	70-200		%REC	1	08/01/14 01:04 PM
IS: Germanium	85.8	0	70-200		%REC	1	08/01/14 01:04 PM
IS: Indium	89.3	0	70-200		%REC	1	08/01/14 01:04 PM

MK 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-7
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-18
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 02:15 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **RO**
Antimony	0.00218	0.000800	0.00250	J	mg/L	1	08/01/14 01:06 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	08/01/14 01:06 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	08/01/14 01:06 PM
IS: Bismuth	92.6	0	70-200		%REC	1	08/01/14 01:06 PM
IS: Germanium	87.5	0	70-200		%REC	1	08/01/14 01:06 PM
IS: Indium	90.3	0	70-200		%REC	1	08/01/14 01:06 PM

MK 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-19
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-19
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 03:00 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **RO**
Antimony	0.00151	0.000800	0.00250	J	mg/L	1	08/01/14 01:08 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	08/01/14 01:08 PM
Lead	0.00110	0.000300	0.00100		mg/L	1	08/01/14 01:08 PM
IS: Bismuth	90.4	0	70-200		%REC	1	08/01/14 01:08 PM
IS: Germanium	87.6	0	70-200		%REC	1	08/01/14 01:08 PM
IS: Indium	88.9	0	70-200		%REC	1	08/01/14 01:08 PM

MK 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detcted in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-24-90
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-20
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 03:20 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **RO**
Antimony	0.0673	0.000800	0.00250		mg/L	1	08/01/14 01:10 PM
Arsenic	0.0484	0.00200	0.00500		mg/L	1	08/01/14 01:10 PM
Lead	0.00479	0.000300	0.00100		mg/L	1	08/01/14 01:10 PM
IS: Bismuth	88.9	0	70-200		%REC	1	08/01/14 01:10 PM
IS: Germanium	85.0	0	70-200		%REC	1	08/01/14 01:10 PM
IS: Indium	86.3	0	70-200		%REC	1	08/01/14 01:10 PM

MK 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-18
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-21
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 04:03 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **RO**
Antimony	0.00127	0.000800	0.00250	J	mg/L	1	08/01/14 01:12 PM
Arsenic	0.00234	0.00200	0.00500	J	mg/L	1	08/01/14 01:12 PM
Lead	0.000433	0.000300	0.00100	J	mg/L	1	08/01/14 01:12 PM
IS: Bismuth	86.5	0	70-200		%REC	1	08/01/14 01:12 PM
IS: Germanium	85.8	0	70-200		%REC	1	08/01/14 01:12 PM
IS: Indium	86.2	0	70-200		%REC	1	08/01/14 01:12 PM

WK 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-27-90
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-22
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 04:25 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **RO**
Antimony	0.0516	0.000800	0.00250		mg/L	1	08/01/14 01:13 PM
Arsenic	0.00224	0.00200	0.00500	J	mg/L	1	08/01/14 01:13 PM
Lead	0.00498	0.000300	0.00100		mg/L	1	08/01/14 01:13 PM
IS: Bismuth	86.4	0	70-200		%REC	1	08/01/14 01:13 PM
IS: Germanium	85.5	0	70-200		%REC	1	08/01/14 01:13 PM
IS: Indium	86.3	0	70-200		%REC	1	08/01/14 01:13 PM

MK 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-28-90
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-23
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 04:55 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **RO**
Antimony	0.0405	0.000800	0.00250		mg/L	1	08/01/14 01:15 PM
Arsenic	0.104	0.00200	0.00500		mg/L	1	08/01/14 01:15 PM
Lead	0.000540	0.000300	0.00100	J	mg/L	1	08/01/14 01:15 PM
IS: Bismuth	90.3	0	70-200		%REC	1	08/01/14 01:15 PM
IS: Germanium	89.4	0	70-200		%REC	1	08/01/14 01:15 PM
IS: Indium	89.2	0	70-200		%REC	1	08/01/14 01:15 PM

WK 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-9
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-24
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 11:16 AM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **RO**
Antimony	0.240	0.000800	0.00250		mg/L	1	08/01/14 01:17 PM
Arsenic	0.0997	0.00200	0.00500		mg/L	1	08/01/14 01:17 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	08/01/14 01:17 PM
IS: Bismuth	87.1	0	70-200		%REC	1	08/01/14 01:17 PM
IS: Germanium	86.2	0	70-200		%REC	1	08/01/14 01:17 PM
IS: Indium	86.1	0	70-200		%REC	1	08/01/14 01:17 PM

MK 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1407278
Project: Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140728A

Sample ID **DCS-63705-1** Batch ID: **63705** TestNo: **SW6020A** Units: **mg/L**
SampType: **DCS** Run ID: **ICP-MS3_140728A** Analysis Date: **7/28/2014 1:35:00 PM** Prep Date: **5/22/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00100	0.00250	0.00100	0	100	80	120	0	0	
Arsenic	0.000866	0.00500	0.00100	0	86.6	80	120	0	0	
Lead	0.000968	0.00100	0.00100	0	96.8	80	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1407278
Project: Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140801A

The QC data in batch 64976 applies to the following samples: 1407278-01A, 1407278-02A, 1407278-03A, 1407278-04A, 1407278-05A, 1407278-06A, 1407278-07A, 1407278-08A, 1407278-09A, 1407278-10A, 1407278-11A, 1407278-12A, 1407278-13A

Sample ID **MB-64976** Batch ID: **64976** TestNo: **SW6020A** Units: **mg/L**
SampType: **MBLK** Run ID: **ICP-MS3_140801A** Analysis Date: **8/1/2014 8:24:00 PM** Prep Date: **8/1/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Lead	<0.000300	0.00100								
IS: Bismuth	0.200		0.200		96.4	70	200			
IS: Germanium	0.200		0.200		111	70	200			
IS: Indium	0.200		0.200		99.0	70	200			

Sample ID **LCS-64976** Batch ID: **64976** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCS** Run ID: **ICP-MS3_140801A** Analysis Date: **8/1/2014 8:30:00 PM** Prep Date: **8/1/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.200	0.00250	0.200	0	100	80	120			
Arsenic	0.216	0.00500	0.200	0	108	80	120			
Lead	0.210	0.00100	0.200	0	105	80	120			
IS: Bismuth	0.200		0.200		96.6	70	200			
IS: Germanium	0.200		0.200		110	70	200			
IS: Indium	0.200		0.200		99.9	70	200			

Sample ID **LCSD-64976** Batch ID: **64976** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS3_140801A** Analysis Date: **8/1/2014 8:36:00 PM** Prep Date: **8/1/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.194	0.00250	0.200	0	96.8	80	120	3.20	15	
Arsenic	0.209	0.00500	0.200	0	105	80	120	3.20	15	
Lead	0.203	0.00100	0.200	0	101	80	120	3.58	15	
IS: Bismuth	0.200		0.200		96.0	70	200	0	0	
IS: Germanium	0.200		0.200		108	70	200	0	0	
IS: Indium	0.200		0.200		100	70	200	0	0	

Sample ID **1407278-03A SD** Batch ID: **64976** TestNo: **SW6020A** Units: **mg/L**
SampType: **SD** Run ID: **ICP-MS3_140801A** Analysis Date: **8/1/2014 8:54:00 PM** Prep Date: **8/1/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.226	0.0125	0	0.218				3.38	10	
Arsenic	<0.0100	0.0250	0	0.00778				0	10	
Lead	0.00180	0.00500	0	0.00161				11.1	10	R
IS: Bismuth	1.00		0.200		93.7	70	200	0	0	
IS: Germanium	1.00		0.200		105	70	200	0	0	
IS: Indium	1.00		0.200		96.4	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1407278
Project: Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140801A

Sample ID **1407278-03A PDS**	Batch ID: **64976**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **PDS**	Run ID: **ICP-MS3_140801A**	Analysis Date: **8/1/2014 9:55:00 PM**	Prep Date: **8/1/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.399	0.00250	0.200	0.218	90.2	80	120			
Arsenic	0.210	0.00500	0.200	0.00778	101	80	120			
Lead	0.202	0.00100	0.200	0.00161	100	80	120			
IS: Bismuth	0.200		0.200		87.6	70	200			
IS: Germanium	0.200		0.200		101	70	200			
IS: Indium	0.200		0.200		91.8	70	200			

Sample ID **1407278-03A MS**	Batch ID: **64976**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MS**	Run ID: **ICP-MS3_140801A**	Analysis Date: **8/1/2014 10:01:00 PM**	Prep Date: **8/1/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.425	0.00250	0.200	0.218	104	80	120			
Arsenic	0.224	0.00500	0.200	0.00778	108	80	120			
Lead	0.210	0.00100	0.200	0.00161	104	80	120			
IS: Bismuth	0.200		0.200		87.1	70	200			
IS: Germanium	0.200		0.200		101	70	200			
IS: Indium	0.200		0.200		90.9	70	200			

Sample ID **1407278-03A MSD**	Batch ID: **64976**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MSD**	Run ID: **ICP-MS3_140801A**	Analysis Date: **8/1/2014 10:07:00 PM**	Prep Date: **8/1/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.424	0.00250	0.200	0.218	103	80	120	0.353	15	
Arsenic	0.220	0.00500	0.200	0.00778	106	80	120	1.81	15	
Lead	0.209	0.00100	0.200	0.00161	104	80	120	0.239	15	
IS: Bismuth	0.200		0.200		90.3	70	200	0	0	
IS: Germanium	0.200		0.200		102	70	200	0	0	
IS: Indium	0.200		0.200		94.1	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1407278
Project: Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140801A

Sample ID ICV1-140801	Batch ID: R74656	TestNo: SW6020A	Units: mg/L
SampType: ICV	Run ID: ICP-MS3_140801A	Analysis Date: 8/1/2014 2:57:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0922	0.00250	0.100	0	92.2	90	110			
Arsenic	0.0988	0.00500	0.100	0	98.8	90	110			
Lead	0.101	0.00100	0.100	0	101	90	110			
IS: Bismuth	0.200		0.200		99.3	70	200			

Sample ID ILCVL-140801	Batch ID: R74656	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS3_140801A	Analysis Date: 8/1/2014 3:03:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00215	0.00250	0.00200	0	108	70	130			
Arsenic	0.00569	0.00500	0.00500	0	114	70	130			
Lead	0.00122	0.00100	0.00100	0	122	70	130			
IS: Bismuth	0.200		0.200		98.0	70	200			

Sample ID CCV2-140801	Batch ID: R74656	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS3_140801A	Analysis Date: 8/1/2014 7:35:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.195	0.00250	0.200	0	97.3	90	110			
Arsenic	0.213	0.00500	0.200	0	106	90	110			
Lead	0.208	0.00100	0.200	0	104	90	110			
IS: Bismuth	0.200		0.200		95.1	70	200			

Sample ID LCVL2-140801	Batch ID: R74656	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS3_140801A	Analysis Date: 8/1/2014 8:00:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00224	0.00250	0.00200	0	112	70	130			
Arsenic	0.00593	0.00500	0.00500	0	119	70	130			
Lead	0.00115	0.00100	0.00100	0	115	70	130			
IS: Bismuth	0.200		0.200		94.6	70	200			

Sample ID CCV3-140801	Batch ID: R74656	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS3_140801A	Analysis Date: 8/1/2014 10:13:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.196	0.00250	0.200	0	98.2	90	110			
Arsenic	0.211	0.00500	0.200	0	106	90	110			
Lead	0.206	0.00100	0.200	0	103	90	110			
IS: Bismuth	0.200		0.200		91.6	70	200			
IS: Germanium	0.200		0.200		101	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1407278
Project: Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140801A

Sample ID **CCV3-140801**	Batch ID: **R74656**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_140801A**	Analysis Date: **8/1/2014 10:13:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
IS: Indium	0.200		0.200		95.5	70	200			

Sample ID **LCVL3-140801**	Batch ID: **R74656**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140801A**	Analysis Date: **8/1/2014 10:37:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00233	0.00250	0.00200	0	117	70	130			
Arsenic	0.00591	0.00500	0.00500	0	118	70	130			
Lead	0.00118	0.00100	0.00100	0	118	70	130			
IS: Bismuth	0.200		0.200		88.6	70	200			
IS: Germanium	0.200		0.200		100	70	200			
IS: Indium	0.200		0.200		92.2	70	200			

Sample ID **CCV4-140801**	Batch ID: **R74656**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_140801A**	Analysis Date: **8/1/2014 11:56:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.199	0.00250	0.200	0	99.4	90	110			
Arsenic	0.214	0.00500	0.200	0	107	90	110			
Lead	0.206	0.00100	0.200	0	103	90	110			
IS: Bismuth	0.200		0.200		84.0	70	200			
IS: Germanium	0.200		0.200		95.4	70	200			
IS: Indium	0.200		0.200		88.3	70	200			

Sample ID **LCVL4-140801**	Batch ID: **R74656**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140801A**	Analysis Date: **8/2/2014 12:26:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00222	0.00250	0.00200	0	111	70	130			
Arsenic	0.00587	0.00500	0.00500	0	117	70	130			
Lead	0.00112	0.00100	0.00100	0	112	70	130			
IS: Bismuth	0.200		0.200		84.7	70	200			
IS: Germanium	0.200		0.200		96.8	70	200			
IS: Indium	0.200		0.200		87.9	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1407278
Project: Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140804B

Sample ID **ICV1-140804**	Batch ID: **R74687**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_140804B**	Analysis Date: **8/4/2014 1:58:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0915	0.00250	0.100	0	91.5	90	110			
IS: Indium	0.200		0.200		93.8	70	200			

Sample ID **ILCVL-140804**	Batch ID: **R74687**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140804B**	Analysis Date: **8/4/2014 2:10:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00199	0.00250	0.00200	0	99.2	70	130			
IS: Indium	0.200		0.200		93.1	70	200			

Sample ID **CCV1-140804**	Batch ID: **R74687**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_140804B**	Analysis Date: **8/4/2014 3:23:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.192	0.00250	0.200	0	96.0	90	110			
IS: Indium	0.200		0.200		97.6	70	200			

Sample ID **LCVL1-140804**	Batch ID: **R74687**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140804B**	Analysis Date: **8/4/2014 3:35:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00230	0.00250	0.00200	0	115	70	130			
IS: Indium	0.200		0.200		94.4	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1407278
Project: Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140724A

Sample ID	DCS-63705-1	Batch ID:	63705	TestNo:	SW6020A	Units:	mg/L
SampType:	DCS	Run ID:	ICP-MS4_140724A	Analysis Date:	7/24/2014 2:00:00 PM	Prep Date:	5/22/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.000950	0.00250	0.00100	0	95.0	80	120	0	0	
Arsenic	0.000944	0.00500	0.00100	0	94.4	80	120	0	0	
Lead	0.000988	0.00100	0.00100	0	98.8	80	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1407278
Project: Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140801A

The QC data in batch 64943 applies to the following samples: 1407278-14A, 1407278-15A, 1407278-16A, 1407278-17A, 1407278-18A, 1407278-19A, 1407278-20A, 1407278-21A, 1407278-22A, 1407278-23A, 1407278-24A

Sample ID **MB-64943** Batch ID: **64943** TestNo: **SW6020A** Units: **mg/L**
SampType: **MBLK** Run ID: **ICP-MS4_140801A** Analysis Date: **8/1/2014 12:10:00 PM** Prep Date: **7/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Lead	<0.000300	0.00100								
IS: Bismuth	0.200		0.200		102	70	200			

Sample ID **LCS-64943** Batch ID: **64943** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCS** Run ID: **ICP-MS4_140801A** Analysis Date: **8/1/2014 12:12:00 PM** Prep Date: **7/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.194	0.00250	0.200	0	97.1	80	120			
Arsenic	0.192	0.00500	0.200	0	96.2	80	120			
Lead	0.203	0.00100	0.200	0	102	80	120			
IS: Bismuth	0.200		0.200		101	70	200			

Sample ID **LCSD-64943** Batch ID: **64943** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS4_140801A** Analysis Date: **8/1/2014 12:14:00 PM** Prep Date: **7/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.190	0.00250	0.200	0	94.9	80	120	2.26	15	
Arsenic	0.184	0.00500	0.200	0	92.1	80	120	4.39	15	
Lead	0.202	0.00100	0.200	0	101	80	120	0.794	15	
IS: Bismuth	0.200		0.200		101	70	200	0	0	

Sample ID **1407285-01A SD** Batch ID: **64943** TestNo: **SW6020A** Units: **mg/L**
SampType: **SD** Run ID: **ICP-MS4_140801A** Analysis Date: **8/1/2014 12:19:00 PM** Prep Date: **7/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.00400	0.0125	0	0				0	10	
Arsenic	<0.0100	0.0250	0	0.00212				0	10	
Lead	<0.00150	0.00500	0	0				0	10	
IS: Bismuth	1.00		0.200		100	70	200	0	0	

Sample ID **1407285-01A PDS** Batch ID: **64943** TestNo: **SW6020A** Units: **mg/L**
SampType: **PDS** Run ID: **ICP-MS4_140801A** Analysis Date: **8/1/2014 12:39:00 PM** Prep Date: **7/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.175	0.00250	0.200	0	87.5	80	120			
Arsenic	0.189	0.00500	0.200	0.00212	93.4	80	120			
Lead	0.206	0.00100	0.200	0	103	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank
J	Analyte detected between MDL and RL
ND	Not Detected at the Method Detection Limit
RL	Reporting Limit
J	Analyte detected between SDL and RL
DF	Dilution Factor
MDL	Method Detection Limit
R	RPD outside accepted control limits
S	Spike Recovery outside control limits
N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1407278
Project: Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140801A

Sample ID **1407285-01A PDS**	Batch ID: **64943**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **PDS**	Run ID: **ICP-MS4_140801A**	Analysis Date: **8/1/2014 12:39:00 PM**	Prep Date: **7/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
IS: Bismuth	0.200		0.200		91.5	70	200			

Sample ID **1407285-01A MS**	Batch ID: **64943**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MS**	Run ID: **ICP-MS4_140801A**	Analysis Date: **8/1/2014 12:40:00 PM**	Prep Date: **7/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.195	0.00250	0.200	0	97.4	80	120			
Arsenic	0.193	0.00500	0.200	0.00212	95.5	80	120			
Lead	0.206	0.00100	0.200	0	103	80	120			
IS: Bismuth	0.200		0.200		90.4	70	200			

Sample ID **1407285-01A MSD**	Batch ID: **64943**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MSD**	Run ID: **ICP-MS4_140801A**	Analysis Date: **8/1/2014 12:42:00 PM**	Prep Date: **7/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.194	0.00250	0.200	0	97.0	80	120	0.402	15	
Arsenic	0.193	0.00500	0.200	0.00212	95.4	80	120	0.166	15	
Lead	0.203	0.00100	0.200	0	101	80	120	1.71	15	
IS: Bismuth	0.200		0.200		90.0	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1407278
Project: Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140801A

Sample ID ICV-140801	Batch ID: R74662	TestNo: SW6020A	Units: mg/L
SampType: ICV	Run ID: ICP-MS4_140801A	Analysis Date: 8/1/2014 11:25:00 AM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0934	0.00250	0.100	0	93.4	90	110			
Arsenic	0.0926	0.00500	0.100	0	92.6	90	110			
Lead	0.100	0.00100	0.100	0	100	90	110			
IS: Bismuth	0.200		0.200		101	70	200			

Sample ID LCVL-140801	Batch ID: R74662	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS4_140801A	Analysis Date: 8/1/2014 11:29:00 AM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00204	0.00250	0.00200	0	102	70	130			
Arsenic	0.00494	0.00500	0.00500	0	98.8	70	130			
Lead	0.00110	0.00100	0.00100	0	110	70	130			
IS: Bismuth	0.200		0.200		101	70	200			

Sample ID CCV1-140801	Batch ID: R74662	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS4_140801A	Analysis Date: 8/1/2014 12:44:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.202	0.00250	0.200	0	101	90	110			
Arsenic	0.202	0.00500	0.200	0	101	90	110			
Lead	0.215	0.00100	0.200	0	107	90	110			
IS: Bismuth	0.200		0.200		95.0	70	200			

Sample ID LCVL1-140801	Batch ID: R74662	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS4_140801A	Analysis Date: 8/1/2014 12:54:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00214	0.00250	0.00200	0	107	70	130			
Arsenic	0.00492	0.00500	0.00500	0	98.5	70	130			
Lead	0.00107	0.00100	0.00100	0	107	70	130			
IS: Bismuth	0.200		0.200		96.3	70	200			

Sample ID CCV2-140801	Batch ID: R74662	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS4_140801A	Analysis Date: 8/1/2014 1:30:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.203	0.00250	0.200	0	101	90	110			
Arsenic	0.203	0.00500	0.200	0	101	90	110			
Lead	0.211	0.00100	0.200	0	105	90	110			
IS: Bismuth	0.200		0.200		96.3	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1407278
Project: Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140801A

Sample ID **LCVL2-140801** Batch ID: **R74662** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS4_140801A** Analysis Date: **8/1/2014 2:01:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00211	0.00250	0.00200	0	106	70	130			
Arsenic	0.00495	0.00500	0.00500	0	99.0	70	130			
Lead	0.00101	0.00100	0.00100	0	101	70	130			
IS: Bismuth	0.200		0.200		97.6	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank
J	Analyte detected between MDL and RL
ND	Not Detected at the Method Detection Limit
RL	Reporting Limit
J	Analyte detected between SDL and RL
DF	Dilution Factor
MDL	Method Detection Limit
R	RPD outside accepted control limits
S	Spike Recovery outside control limits
N	Parameter not NELAC certified

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1407278
Project: Rockwool Belton, TX

MQL SUMMARY REPORT

TestNo: SW6020A	MDL	MQL
Analyte	**mg/L**	**mg/L**
Antimony	0.000800	0.00250
Arsenic	0.00200	0.00500
Lead	0.000300	0.00100

Qualifiers: MQL -Method Quantitation Limit as defined by TRRP
MDL -Method Detection Limit as defined by TRRP

APPENDIX B

LABORATORY NELAP CERTIFICATE

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Drinking Water***

Method EPA 200.8

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10014605
Antimony	TX	1005	10014605
Arsenic	TX	1010	10014605
Barium	TX	1015	10014605
Beryllium	TX	1020	10014605
Cadmium	TX	1030	10014605
Chromium	TX	1040	10014605
Copper	TX	1055	10014605
Lead	TX	1075	10014605
Manganese	TX	1090	10014605
Nickel	TX	1105	10014605
Selenium	TX	1140	10014605
Silver	TX	1150	10014605
Thallium	TX	1165	10014605
Uranium	TX	3035	10014605
Zinc	TX	1190	10014605

Method EPA 245.1

Analyte	AB	Analyte ID	Method ID
Mercury	TX	1095	10036609

Method EPA 300.0

Analyte	AB	Analyte ID	Method ID
Fluoride	TX	1730	10053006
Nitrate as N	TX	1810	10053006
Nitrite as N	TX	1840	10053006

Method EPA 335.2

Analyte	AB	Analyte ID	Method ID
Total Cyanide	TX	1635	10060409

Method EPA 524.2

Analyte	AB	Analyte ID	Method ID

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Drinking Water*

1,1,1-Trichloroethane	TX	5160	10089006
1,1,2-Trichloroethane	TX	5165	10089006
1,1-Dichloroethylene	TX	4640	10089006
1,2,4-Trichlorobenzene	TX	5155	10089006
1,2-Dichlorobenzene	TX	4610	10089006
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10089006
1,2-Dichloropropane	TX	4655	10089006
1,4-Dichlorobenzene	TX	4620	10089006
Benzene	TX	4375	10089006
Carbon tetrachloride	TX	4455	10089006
Chlorobenzene	TX	4475	10089006
cis-1,2-Dichloroethylene	TX	4645	10089006
Ethylbenzene	TX	4765	10089006
m+p-xylene	TX	5240	10089006
Methylene chloride (Dichloromethane)	TX	4975	10089006
o-Xylene	TX	5250	10089006
Styrene	TX	5100	10089006
Tetrachloroethylene (Perchloroethylene)	TX	5115	10089006
Toluene	TX	5140	10089006
Total trihalomethanes	TX	5205	10089006
trans-1,2-Dichloroethylene	TX	4700	10089006
Trichloroethene (Trichloroethylene)	TX	5170	10089006
Vinyl chloride	TX	5235	10089006
Xylene (total)	TX	5260	10089006

Method EPA 525.2

Analyte	AB	Analyte ID	Method ID
Alachlor	TX	7005	10090003
Atrazine	TX	7065	10090003
Benzo(a)pyrene	TX	5580	10090003
bis(2-Ethylhexyl) adipate (Di(2-Ethylhexyl) adipate, DEHA)	TX	6062	10090003

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Drinking Water***

bis(2-Ethylhexyl) phthalate (Di(2-Ethylhexyl) phthalate, DEHP)	TX	6065	10090003
Chlordane (tech.)	TX	7250	10090003
Endrin	TX	7540	10090003
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10090003
Heptachlor	TX	7685	10090003
Heptachlor epoxide	TX	7690	10090003
Hexachlorobenzene	TX	6275	10090003
Hexachlorocyclopentadiene	TX	6285	10090003
Methoxychlor	TX	7810	10090003
PCB Aroclor Identification	TX	8872	10090003
Pentachlorophenol	TX	6605	10090003
Simazine	TX	8125	10090003
Toxaphene (Chlorinated camphene)	TX	8250	10090003

Method SM 4500-CN^- E

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Cyanide	TX	1635	20096428

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

Method EPA 1010

Analyte	AB	Analyte ID	Method ID
Ignitability	TX	1780	10116606

Method EPA 120.1

Analyte	AB	Analyte ID	Method ID
Conductivity	TX	1610	10006403

Method EPA 1311

Analyte	AB	Analyte ID	Method ID
TCLP	TX	849	10118806

Method EPA 1312

Analyte	AB	Analyte ID	Method ID
SPLP	TX	850	10119003

Method EPA 150.1

Analyte	AB	Analyte ID	Method ID
pH	TX	1900	10008409

Method EPA 160.1

Analyte	AB	Analyte ID	Method ID
Residue-filterable (TDS)	TX	1955	10009208

Method EPA 160.2

Analyte	AB	Analyte ID	Method ID
Residue-nonfilterable (TSS)	TX	1960	10009606

Method EPA 1664

Analyte	AB	Analyte ID	Method ID
n-Hexane Extractable Material (HEM) (O&G)	TX	1803	10127807

Method EPA 180.1

Analyte	AB	Analyte ID	Method ID
Turbidity	TX	2055	10011606

Method EPA 200.8

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10014605
Antimony	TX	1005	10014605
Arsenic	TX	1010	10014605

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

Barium	TX	1015	10014605
Beryllium	TX	1020	10014605
Boron	TX	1025	10014605
Cadmium	TX	1030	10014605
Calcium	TX	1035	10014605
Chromium	TX	1040	10014605
Cobalt	TX	1050	10014605
Copper	TX	1055	10014605
Iron	TX	1070	10014605
Lead	TX	1075	10014605
Magnesium	TX	1085	10014605
Manganese	TX	1090	10014605
Molybdenum	TX	1100	10014605
Nickel	TX	1105	10014605
Potassium	TX	1125	10014605
Selenium	TX	1140	10014605
Silver	TX	1150	10014605
Sodium	TX	1155	10014605
Strontium	TX	1160	10014605
Thallium	TX	1165	10014605
Tin	TX	1175	10014605
Titanium	TX	1180	10014605
Vanadium	TX	1185	10014605
Zinc	TX	1190	10014605

Method EPA 245.1

Analyte	AB	Analyte ID	Method ID
Mercury	TX	1095	10036609

Method EPA 300.0

Analyte	AB	Analyte ID	Method ID
Bromide	TX	1540	10053006
Chloride	TX	1575	10053006

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Non-Potable Water*

Fluoride	TX	1730	10053006
Nitrate as N	TX	1810	10053006
Nitrate-nitrite	TX	1820	10053006
Nitrite as N	TX	1840	10053006
Sulfate	TX	2000	10053006

Method EPA 305.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Acidity, as CaCO3	TX	1500	10054203

Method EPA 310.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Alkalinity as CaCO3	TX	1505	10054805

Method EPA 335.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	10060001

Method EPA 335.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Total cyanide	TX	1645	10060205

Method EPA 365.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Orthophosphate as P	TX	1870	10070403
Phosphorus	TX	1910	10070403

Method EPA 370.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Silica as SiO2	TX	1990	10072001

Method EPA 376.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfide	TX	2005	10074609

Method EPA 415.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Organic Carbon (TOC)	TX	2040	10078407

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

Method EPA 602

Analyte	AB	Analyte ID	Method ID
Benzene	TX	4375	10102202
Ethylbenzene	TX	4765	10102202
m+p-xylene	TX	5240	10102202
Methyl tert-butyl ether (MTBE)	TX	5000	10102202
o-Xylene	TX	5250	10102202
Toluene	TX	5140	10102202
Xylene (total)	TX	5260	10102202

Method EPA 6020

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10156204
Antimony	TX	1005	10156204
Arsenic	TX	1010	10156204
Barium	TX	1015	10156204
Beryllium	TX	1020	10156204
Boron	TX	1025	10156204
Cadmium	TX	1030	10156204
Calcium	TX	1035	10156204
Chromium	TX	1040	10156204
Cobalt	TX	1050	10156204
Copper	TX	1055	10156204
Iron	TX	1070	10156204
Lead	TX	1075	10156204
Lithium	TX	1080	10156204
Magnesium	TX	1085	10156204
Manganese	TX	1090	10156204
Molybdenum	TX	1100	10156204
Nickel	TX	1105	10156204
Potassium	TX	1125	10156204
Selenium	TX	1140	10156204

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

Silver	TX	1150	10156204
Sodium	TX	1155	10156204
Strontium	TX	1160	10156204
Thallium	TX	1165	10156204
Tin	TX	1175	10156204
Titanium	TX	1180	10156204
Vanadium	TX	1185	10156204
Zinc	TX	1190	10156204

Method EPA 608

Analyte	AB	Analyte ID	Method ID
Aroclor-1016 (PCB-1016)	TX	8880	10103603
Aroclor-1221 (PCB-1221)	TX	8885	10103603
Aroclor-1232 (PCB-1232)	TX	8890	10103603
Aroclor-1242 (PCB-1242)	TX	8895	10103603
Aroclor-1248 (PCB-1248)	TX	8900	10103603
Aroclor-1254 (PCB-1254)	TX	8905	10103603
Aroclor-1260 (PCB-1260)	TX	8910	10103603

Method EPA 624

Analyte	AB	Analyte ID	Method ID
1,1,1-Trichloroethane	TX	5160	10107207
1,1,2,2-Tetrachloroethane	TX	5110	10107207
1,1,2-Trichloroethane	TX	5165	10107207
1,1-Dichloroethane	TX	4630	10107207
1,1-Dichloroethylene	TX	4640	10107207
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10107207
1,2-Dichlorobenzene	TX	4610	10107207
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10107207
1,2-Dichloropropane	TX	4655	10107207
1,3-Dichlorobenzene	TX	4615	10107207
1,4-Dichlorobenzene	TX	4620	10107207
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10107207

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Non-Potable Water*

2-Chloroethyl vinyl ether	TX	4500	10107207
Acetone (2-Propanone)	TX	4315	10107207
Acrolein (Propenal)	TX	4325	10107207
Acrylonitrile	TX	4340	10107207
Benzene	TX	4375	10107207
Bromodichloromethane	TX	4395	10107207
Bromoform	TX	4400	10107207
Carbon tetrachloride	TX	4455	10107207
Chlorobenzene	TX	4475	10107207
Chlorodibromomethane	TX	4575	10107207
Chloroethane (Ethyl chloride)	TX	4485	10107207
Chloroform	TX	4505	10107207
cis-1,2-Dichloroethylene	TX	4645	10107207
cis-1,3-Dichloropropene	TX	4680	10107207
Ethylbenzene	TX	4765	10107207
m+p-xylene	TX	5240	10107207
Methyl bromide (Bromomethane)	TX	4950	10107207
Methyl chloride (Chloromethane)	TX	4960	10107207
Methyl tert-butyl ether (MTBE)	TX	5000	10107207
Methylene chloride (Dichloromethane)	TX	4975	10107207
Naphthalene	TX	5005	10107207
o-Xylene	TX	5250	10107207
Tetrachloroethylene (Perchloroethylene)	TX	5115	10107207
Toluene	TX	5140	10107207
Total trihalomethanes	TX	5205	10107207
trans-1,2-Dichloroethylene	TX	4700	10107207
trans-1,3-Dichloropropylene	TX	4685	10107207
Trichloroethene (Trichloroethylene)	TX	5170	10107207
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10107207
Vinyl chloride	TX	5235	10107207

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Non-Potable Water*

Xylene (total)	TX	5260	10107207

Method EPA 625

Analyte	AB	Analyte ID	Method ID
1,2,4,5-Tetrachlorobenzene	TX	6715	10107401
1,2,4-Trichlorobenzene	TX	5155	10107401
1,2-Dichlorobenzene	TX	4610	10107401
1,2-Diphenylhydrazine	TX	6220	10107401
1,3-Dichlorobenzene	TX	4615	10107401
1,4-Dichlorobenzene	TX	4620	10107401
2,3,4,6-Tetrachlorophenol	TX	6735	10107401
2,4,5-Trichlorophenol	TX	6835	10107401
2,4,6-Trichlorophenol	TX	6840	10107401
2,4-Dichlorophenol	TX	6000	10107401
2,4-Dimethylphenol	TX	6130	10107401
2,4-Dinitrophenol	TX	6175	10107401
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10107401
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10107401
2-Chloronaphthalene	TX	5795	10107401
2-Chlorophenol	TX	5800	10107401
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10107401
2-Methylphenol (o-Cresol)	TX	6400	10107401
2-Nitrophenol	TX	6490	10107401
3,3'-Dichlorobenzidine	TX	5945	10107401
4,4'-DDD	TX	7355	10107401
4,4'-DDE	TX	7360	10107401
4,4'-DDT	TX	7365	10107401
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10107401
4-Chloro-3-methylphenol	TX	5700	10107401
4-Chlorophenyl phenylether	TX	5825	10107401
4-Methylphenol (p-Cresol)	TX	6410	10107401

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Non-Potable Water*

4-Nitrophenol	TX	6500	10107401
Acenaphthene	TX	5500	10107401
Acenaphthylene	TX	5505	10107401
Aldrin	TX	7025	10107401
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10107401
alpha-Chlordane	TX	7240	10107401
Anthracene	TX	5555	10107401
Aroclor-1016 (PCB-1016)	TX	8880	10107401
Aroclor-1221 (PCB-1221)	TX	8885	10107401
Aroclor-1232 (PCB-1232)	TX	8890	10107401
Aroclor-1242 (PCB-1242)	TX	8895	10107401
Aroclor-1248 (PCB-1248)	TX	8900	10107401
Aroclor-1254 (PCB-1254)	TX	8905	10107401
Aroclor-1260 (PCB-1260)	TX	8910	10107401
Benzidine	TX	5595	10107401
Benzo(a)anthracene	TX	5575	10107401
Benzo(a)pyrene	TX	5580	10107401
Benzo(b)fluoranthene	TX	5585	10107401
Benzo(g,h,i)perylene	TX	5590	10107401
Benzo(k)fluoranthene	TX	5600	10107401
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10107401
bis(2-Chloroethoxy)methane	TX	5760	10107401
bis(2-Chloroethyl) ether	TX	5765	10107401
bis(2-Chloroisopropyl) ether	TX	5780	10107401
bis(2-Ethylhexyl) phthalate (DEHP)	TX	6255	10107401
Butyl benzyl phthalate	TX	5670	10107401
Chrysene	TX	5855	10107401
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10107401
Dibenz(a,h) anthracene	TX	5895	10107401
Dieldrin	TX	7470	10107401

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Non-Potable Water*

Diethyl phthalate	TX	6070	10107401
Dimethyl phthalate	TX	6135	10107401
Di-n-butyl phthalate	TX	5925	10107401
Di-n-octyl phthalate	TX	6200	10107401
Endosulfan I	TX	7510	10107401
Endosulfan II	TX	7515	10107401
Endosulfan sulfate	TX	7520	10107401
Endrin	TX	7540	10107401
Endrin aldehyde	TX	7530	10107401
Fluoranthene	TX	6265	10107401
Fluorene	TX	6270	10107401
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10107401
gamma-Chlordane	TX	7245	10107401
Heptachlor	TX	7685	10107401
Heptachlor epoxide	TX	7690	10107401
Hexachlorobenzene	TX	6275	10107401
Hexachlorobutadiene	TX	4835	10107401
Hexachlorocyclopentadiene	TX	6285	10107401
Hexachloroethane	TX	4840	10107401
Indeno(1,2,3-cd) pyrene	TX	6315	10107401
Isophorone	TX	6320	10107401
Naphthalene	TX	5005	10107401
Nitrobenzene	TX	5015	10107401
n-Nitrosodiethylamine	TX	6525	10107401
n-Nitrosodimethylamine	TX	6530	10107401
n-Nitrosodi-n-butylamine	TX	5025	10107401
n-Nitrosodi-n-propylamine	TX	6545	10107401
n-Nitrosodiphenylamine	TX	6535	10107401
Pentachlorobenzene	TX	6590	10107401
Pentachlorophenol	TX	6605	10107401

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

Phenanthrene	TX	6615	10107401
Phenol	TX	6625	10107401
Pyrene	TX	6665	10107401
Pyridine	TX	5095	10107401
Toxaphene (Chlorinated camphene)	TX	8250	10107401

Method EPA 7196

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	TX	1045	10162400

Method EPA 7470

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10165807

Method EPA 8015

Analyte	**AB**	**Analyte ID**	**Method ID**
Diesel range organics (DRO)	TX	9369	10173203
Ethylene glycol	TX	4785	10173203
Gasoline range organics (GRO)	TX	9408	10173203
Propylene Glycol	TX	6657	10173203

Method EPA 8021

Analyte	**AB**	**Analyte ID**	**Method ID**
Benzene	TX	4375	10174808
Ethylbenzene	TX	4765	10174808
m+p-xylene	TX	5240	10174808
Methyl tert-butyl ether (MTBE)	TX	5000	10174808
o-Xylene	TX	5250	10174808
Toluene	TX	5140	10174808
Xylene (total)	TX	5260	10174808

Method EPA 8082

Analyte	**AB**	**Analyte ID**	**Method ID**
Aroclor-1016 (PCB-1016)	TX	8880	10179007
Aroclor-1221 (PCB-1221)	TX	8885	10179007
Aroclor-1232 (PCB-1232)	TX	8890	10179007

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Non-Potable Water*

Aroclor-1242 (PCB-1242)	TX	8895	10179007
Aroclor-1248 (PCB-1248)	TX	8900	10179007
Aroclor-1254 (PCB-1254)	TX	8905	10179007
Aroclor-1260 (PCB-1260)	TX	8910	10179007
PCBs (total)	TX	8870	10179007

Method EPA 8260

Analyte	AB	Analyte ID	Method ID
1,1,1,2-Tetrachloroethane	TX	5105	10184802
1,1,1-Trichloroethane	TX	5160	10184802
1,1,2,2-Tetrachloroethane	TX	5110	10184802
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TX	5195	10184802
1,1,2-Trichloroethane	TX	5165	10184802
1,1-Dichloroethane	TX	4630	10184802
1,1-Dichloroethylene	TX	4640	10184802
1,1-Dichloropropene	TX	4670	10184802
1,2,3-Trichlorobenzene	TX	5150	10184802
1,2,3-Trichloropropane	TX	5180	10184802
1,2,4-Trichlorobenzene	TX	5155	10184802
1,2,4-Trimethylbenzene	TX	5210	10184802
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10184802
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10184802
1,2-Dichlorobenzene	TX	4610	10184802
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10184802
1,2-Dichloropropane	TX	4655	10184802
1,3,5-Trimethylbenzene	TX	5215	10184802
1,3-Dichlorobenzene	TX	4615	10184802
1,3-Dichloropropane	TX	4660	10184802
1,4-Dichlorobenzene	TX	4620	10184802
1-Chlorohexane	TX	4510	10184802
2,2-Dichloropropane	TX	4665	10184802

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Non-Potable Water*

2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10184802
2-Chloroethyl vinyl ether	TX	4500	10184802
2-Chlorotoluene	TX	4535	10184802
2-Hexanone (MBK)	TX	4860	10184802
4-Chlorotoluene	TX	4540	10184802
4-Isopropyltoluene (p-Cymene)	TX	4915	10184802
4-Methyl-2-pentanone (MIBK)	TX	4995	10184802
Acetone (2-Propanone)	TX	4315	10184802
Acrolein (Propenal)	TX	4325	10184802
Acrylonitrile	TX	4340	10184802
Benzene	TX	4375	10184802
Bromobenzene	TX	4385	10184802
Bromochloromethane	TX	4390	10184802
Bromodichloromethane	TX	4395	10184802
Bromoform	TX	4400	10184802
Carbon disulfide	TX	4450	10184802
Carbon tetrachloride	TX	4455	10184802
Chlorobenzene	TX	4475	10184802
Chlorodibromomethane	TX	4575	10184802
Chloroethane (Ethyl chloride)	TX	4485	10184802
Chloroform	TX	4505	10184802
cis-1,2-Dichloroethylene	TX	4645	10184802
cis-1,3-Dichloropropene	TX	4680	10184802
Dibromomethane (Methylene bromide)	TX	4595	10184802
Dichlorodifluoromethane (Freon-12)	TX	4625	10184802
Ethylbenzene	TX	4765	10184802
Ethyl-t-butylether (ETBE) (2-Ethoxy-2-methylpropane)	TX	4770	10184802
Hexachlorobutadiene	TX	4835	10184802
Iodomethane (Methyl iodide)	TX	4870	10184802
Isopropyl ether	TX	4905	10184802

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

Isopropylbenzene (Cumene)	TX	4900	10184802
m+p-xylene	TX	5240	10184802
Methyl acetate	TX	4940	10184802
Methyl bromide (Bromomethane)	TX	4950	10184802
Methyl chloride (Chloromethane)	TX	4960	10184802
Methyl tert-butyl ether (MTBE)	TX	5000	10184802
Methylcyclohexane	TX	4965	10184802
Methylene chloride (Dichloromethane)	TX	4975	10184802
Naphthalene	TX	5005	10184802
n-Butylbenzene	TX	4435	10184802
n-Propylbenzene	TX	5090	10184802
o-Xylene	TX	5250	10184802
sec-Butylbenzene	TX	4440	10184802
Styrene	TX	5100	10184802
T-amylmethylether (TAME)	TX	4370	10184802
tert-Butyl alcohol	TX	4420	10184802
tert-Butylbenzene	TX	4445	10184802
Tetrachloroethylene (Perchloroethylene)	TX	5115	10184802
Toluene	TX	5140	10184802
Total trihalomethanes	TX	5205	10184802
trans-1,2-Dichloroethylene	TX	4700	10184802
trans-1,3-Dichloropropylene	TX	4685	10184802
trans-1,4-Dichloro-2-butene	TX	4605	10184802
Trichloroethene (Trichloroethylene)	TX	5170	10184802
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10184802
Vinyl acetate	TX	5225	10184802
Vinyl chloride	TX	5235	10184802
Xylene (total)	TX	5260	10184802

Method EPA 8270

Analyte	**AB**	**Analyte ID**	**Method ID**

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Non-Potable Water*

1,2,4,5-Tetrachlorobenzene	TX	6715	10185805
1,2,4-Trichlorobenzene	TX	5155	10185805
1,2-Dichlorobenzene	TX	4610	10185805
1,2-Diphenylhydrazine	TX	6220	10185805
1,3-Dichlorobenzene	TX	4615	10185805
1,4-Dichlorobenzene	TX	4620	10185805
1-Naphthylamine	TX	6425	10185805
2,3,4,6-Tetrachlorophenol	TX	6735	10185805
2,4,5-Trichlorophenol	TX	6835	10185805
2,4,6-Trichlorophenol	TX	6840	10185805
2,4-Dichlorophenol	TX	6000	10185805
2,4-Dimethylphenol	TX	6130	10185805
2,4-Dinitrophenol	TX	6175	10185805
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10185805
2,6-Dichlorophenol	TX	6005	10185805
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10185805
2-Chloronaphthalene	TX	5795	10185805
2-Chlorophenol	TX	5800	10185805
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10185805
2-Methylnaphthalene	TX	6385	10185805
2-Methylphenol (o-Cresol)	TX	6400	10185805
2-Naphthylamine	TX	6430	10185805
2-Nitroaniline	TX	6460	10185805
2-Nitrophenol	TX	6490	10185805
2-Picoline (2-Methylpyridine)	TX	5050	10185805
3,3'-Dichlorobenzidine	TX	5945	10185805
3-Methylcholanthrene	TX	6355	10185805
3-Nitroaniline	TX	6465	10185805
4,4'-DDD	TX	7355	10185805
4,4'-DDE	TX	7360	10186002

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Non-Potable Water*

4,4'-DDT	TX	7365	10185805
4-Aminobiphenyl	TX	5540	10185805
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10185805
4-Chloro-3-methylphenol	TX	5700	10185805
4-Chloroaniline	TX	5745	10185805
4-Chlorophenyl phenylether	TX	5825	10185805
4-Dimethyl aminoazobenzene	TX	6105	10185805
4-Methylphenol (p-Cresol)	TX	6410	10185805
4-Nitroaniline	TX	6470	10185805
4-Nitrophenol	TX	6500	10185805
7,12-Dimethylbenz(a) anthracene	TX	6115	10185805
a-a-Dimethylphenethylamine	TX	6125	10185805
Acenaphthene	TX	5500	10185805
Acenaphthylene	TX	5505	10185805
Acetophenone	TX	5510	10185805
Aldrin	TX	7025	10186002
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10186002
alpha-Chlordane	TX	7240	10185601
Aniline	TX	5545	10185805
Anthracene	TX	5555	10185805
Aroclor-1016 (PCB-1016)	TX	8880	10186002
Aroclor-1221 (PCB-1221)	TX	8885	10185203
Aroclor-1232 (PCB-1232)	TX	8890	10185407
Aroclor-1242 (PCB-1242)	TX	8895	10185203
Aroclor-1248 (PCB-1248)	TX	8900	10186002
Aroclor-1254 (PCB-1254)	TX	8905	10185601
Aroclor-1260 (PCB-1260)	TX	8910	10185203
Atrazine	TX	7065	10185805
Azinphos-methyl (Guthion)	TX	7075	10185805
Benzidine	TX	5595	10185805

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Non-Potable Water*

Benzo(a)anthracene	TX	5575	10185805
Benzo(a)pyrene	TX	5580	10185805
Benzo(b)fluoranthene	TX	5585	10185805
Benzo(e)pyrene	TX	5605	10185805
Benzo(g,h,i)perylene	TX	5590	10185805
Benzo(k)fluoranthene	TX	5600	10185805
Benzoic acid	TX	5610	10185805
Benzyl alcohol	TX	5630	10185805
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10185203
Biphenyl	TX	5640	10185805
bis(2-Chloroethoxy)methane	TX	5760	10185805
bis(2-Chloroethyl) ether	TX	5765	10185805
bis(2-Chloroisopropyl) ether	TX	5780	10185805
bis(2-Ethylhexyl) phthalate (DEHP)	TX	6255	10185805
Butyl benzyl phthalate	TX	5670	10185805
Caprolactam	TX	7180	10185805
Carbaryl (Sevin)	TX	7195	10185407
Carbazole	TX	5680	10185805
Carbophenothion	TX	7220	10185407
Chlordane (tech.)	TX	7250	10185203
Chlorfenvinphos	TX	7255	10185805
Chrysene	TX	5855	10185805
Coumaphos	TX	7315	10186002
Crotoxyphos	TX	7330	10185407
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10185805
Demeton	TX	7390	10185407
Demeton-o	TX	7395	10185203
Demeton-s	TX	7385	10185601
Dibenz(a,h) anthracene	TX	5895	10185805
Dibenzofuran	TX	5905	10185805

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Non-Potable Water*

Dichlorovos (DDVP, Dichlorvos)	TX	8610	10186002
Dicrotophos	TX	7465	10185407
Dieldrin	TX	7470	10186002
Diethyl phthalate	TX	6070	10185805
Dimethoate	TX	7475	10185805
Dimethyl phthalate	TX	6135	10185805
Di-n-butyl phthalate	TX	5925	10185805
Di-n-octyl phthalate	TX	6200	10185805
Dioxathion	TX	7495	10185203
Diphenylamine	TX	6205	10185805
Disulfoton	TX	8625	10185601
Endosulfan I	TX	7510	10185805
Endosulfan II	TX	7515	10185203
Endosulfan sulfate	TX	7520	10185601
Endrin	TX	7540	10185203
Endrin aldehyde	TX	7530	10185805
Endrin ketone	TX	7535	10186002
EPN (Phosphonothioic acid, phenyl-, O-ethyl O-(p-nitrophenyl) ester)	TX	7550	10186002
Ethion	TX	7565	10185805
Ethyl methanesulfonate	TX	6260	10185805
Famphur	TX	7580	10185407
Fensulfothion	TX	7600	10185203
Fenthion	TX	7605	10186002
Fluoranthene	TX	6265	10185805
Fluorene	TX	6270	10185805
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10185203
gamma-Chlordane	TX	7245	10185203
Heptachlor	TX	7685	10185601
Heptachlor epoxide	TX	7690	10185805
Hexachlorobenzene	TX	6275	10185805

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Non-Potable Water*

Hexachlorobutadiene	TX	4835	10185805
Hexachlorocyclopentadiene	TX	6285	10185805
Hexachloroethane	TX	4840	10185805
Hexachlorophene	TX	6290	10185805
Indeno(1,2,3-cd) pyrene	TX	6315	10185805
Isodrin	TX	7725	10185407
Isophorone	TX	6320	10185805
Leptophos	TX	7755	10186002
Malathion	TX	7770	10186002
Methoxychlor	TX	7810	10185601
Methyl methanesulfonate	TX	6375	10185805
Methyl parathion (Parathion, methyl)	TX	7825	10185203
Mevinphos	TX	7850	10186002
Monocrotophos	TX	7880	10185203
Naled	TX	7905	10185203
Naphthalene	TX	5005	10185805
Nitrobenzene	TX	5015	10185805
n-Nitrosodiethylamine	TX	6525	10185805
n-Nitrosodimethylamine	TX	6530	10185805
n-Nitrosodi-n-butylamine	TX	5025	10185805
n-Nitrosodi-n-propylamine	TX	6545	10185805
n-Nitrosodiphenylamine	TX	6535	10185805
n-Nitrosopiperidine	TX	6560	10185805
Parathion, ethyl	TX	7955	10185805
Pentachlorobenzene	TX	6590	10185805
Pentachloronitrobenzene (PCNB)	TX	6600	10185805
Pentachlorophenol	TX	6605	10185805
Phenacetin	TX	6610	10185805
Phenanthrene	TX	6615	10185805
Phenol	TX	6625	10185805

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

Phorate	TX	7985	10186002
Phosmet (Imidan)	TX	8000	10186002
Phosphamidon	TX	8005	10185805
Pronamide (Kerb)	TX	6650	10185805
Pyrene	TX	6665	10185805
Pyridine	TX	5095	10185805
Quinoline	TX	6670	10185805
Sulfotepp	TX	8155	10186002
Terbufos	TX	8185	10185805
Tetrachlorvinphos (Stirophos, Gardona)	TX	8197	10186002
Tetraethyl pyrophosphate (TEPP)	TX	8210	10185407
Toxaphene (Chlorinated camphene)	TX	8250	10185203

Method EPA 8321

Analyte	**AB**	**Analyte ID**	**Method ID**
2,4,5-T	TX	8655	10188804
2,4-D	TX	8545	10188804
2,4-DB	TX	8560	10188804
Dalapon	TX	8555	10188804
Dicamba	TX	8595	10188804
Dichloroprop (Dichlorprop, Weedone)	TX	8605	10188804
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	TX	8620	10188804
MCPA	TX	7775	10188804
MCPP	TX	7780	10188804
Silvex (2,4,5-TP)	TX	8650	10188804

Method EPA 8330

Analyte	**AB**	**Analyte ID**	**Method ID**
1,3,5-Trinitrobenzene (1,3,5-TNB)	TX	6885	10189807
1,3-Dinitrobenzene (1,3-DNB)	TX	6160	10189807
2,4,6-Trinitrotoluene (2,4,6-TNT)	TX	9651	10189807
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10189807
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10189807

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

2-Amino-4,6-dinitrotoluene (2-am-dnt)	TX	9303	10189807
2-Nitrotoluene	TX	9507	10189807
3-Nitrotoluene	TX	9510	10189807
4-Amino-2,6-dinitrotoluene (4-am-dnt)	TX	9306	10189807
4-Nitrotoluene	TX	9513	10189807
Methyl-2,4,6-trinitrophenylnitramine (tetryl)	TX	6415	10189807
Nitrobenzene	TX	5015	10189807
Nitroglycerin	TX	6485	10189807
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	TX	9522	10189807
Pentaerythritoltetranitrate (PETN)	TX	9558	10189807
RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine)	TX	9432	10189807

Method EPA 9014

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	10193803
Total Cyanide	TX	1635	10193803

Method EPA 9040

Analyte	**AB**	**Analyte ID**	**Method ID**
pH	TX	1900	10197203

Method EPA 9056

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10199209
Chloride	TX	1575	10199209
Fluoride	TX	1730	10199209
Nitrate as N	TX	1810	10199209
Nitrate-nitrite	TX	1820	10199209
Nitrite as N	TX	1840	10199209
Sulfate	TX	2000	10199209

Method EPA 9060

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Organic Carbon (TOC)	TX	2040	10200201

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

Method EPA 9070

Analyte	AB	Analyte ID	Method ID
n-Hexane Extractable Material (HEM) (O&G)	TX	1803	10201000

Method EPA RSK 175

Analyte	AB	Analyte ID	Method ID
Carbon dioxide	TX	3755	10212905
Ethane	TX	4747	10212905
Ethene	TX	4752	10212905
Methane	TX	4926	10212905

Method HACH 8000

Analyte	AB	Analyte ID	Method ID
Chemical oxygen demand (COD)	TX	1565	60003001

Method SM 2130 B

Analyte	AB	Analyte ID	Method ID
Turbidity	TX	2055	20048220

Method SM 2310 B (4a)

Analyte	AB	Analyte ID	Method ID
Acidity, as CaCO3	TX	1500	20044615

Method SM 2320 B

Analyte	AB	Analyte ID	Method ID
Alkalinity as CaCO3	TX	1505	20045618

Method SM 2340 B

Analyte	AB	Analyte ID	Method ID
Total hardness as CaCO3	TX	1755	20046611

Method SM 2510 B

Analyte	AB	Analyte ID	Method ID
Conductivity	TX	1610	20048617

Method SM 2540 C

Analyte	AB	Analyte ID	Method ID
Residue-filterable (TDS)	TX	1955	20050413

Method SM 2540 D

Analyte	AB	Analyte ID	Method ID

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Non-Potable Water*

Residue-nonfilterable (TSS)	TX	1960	20051212

Method SM 3500-Cr B

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium	TX	1040	20066266

Method SM 4500-CN^- E

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Cyanide	TX	1635	20096428

Method SM 4500-CN^- G

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	20097227

Method SM 4500-H+ B

Analyte	**AB**	**Analyte ID**	**Method ID**
pH	TX	1900	20105220

Method SM 4500-NH3 D

Analyte	**AB**	**Analyte ID**	**Method ID**
Ammonia as N	TX	1515	20109415

Method SM 4500-P E

Analyte	**AB**	**Analyte ID**	**Method ID**
Orthophosphate as P	TX	1870	20124225
Phosphorus	TX	1910	20124225

Method SM 4500-$S2^-$ D

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfide	TX	2005	20125864

Method SM 4500-SiO2 C

Analyte	**AB**	**Analyte ID**	**Method ID**
Silica as SiO2	TX	1990	20128614

Method SM 5220 D

Analyte	**AB**	**Analyte ID**	**Method ID**
Chemical oxygen demand (COD)	TX	1565	20136816

Method SM 5310 C

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Organic Carbon (TOC)	TX	2040	20138823

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11

DHL Analytical, Inc.

Expiration Date: 4/30/2014

Issue Date: 6/11/2013

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

Method TCEQ 1005

Analyte	AB	Analyte ID	Method ID
Total Petroleum Hydrocarbons (TPH)	TX	2050	90019208

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Method ASTM D2216

Analyte	AB	Analyte ID	Method ID
Moisture	TX	10337	ASTM D2216-05

Method EPA 1010

Analyte	AB	Analyte ID	Method ID
Ignitability	TX	1780	10116606

Method EPA 1311

Analyte	AB	Analyte ID	Method ID
TCLP	TX	849	10118806

Method EPA 1312

Analyte	AB	Analyte ID	Method ID
SPLP	TX	850	10119003

Method EPA 200.8

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10014605
Antimony	TX	1005	10014605
Arsenic	TX	1010	10014605
Barium	TX	1015	10014605
Beryllium	TX	1020	10014605
Cadmium	TX	1030	10014605
Calcium	TX	1035	10014605
Chromium	TX	1040	10014605
Cobalt	TX	1050	10014605
Copper	TX	1055	10014605
Iron	TX	1070	10014605
Lead	TX	1075	10014605
Magnesium	TX	1085	10014605
Manganese	TX	1090	10014605
Molybdenum	TX	1100	10014605
Nickel	TX	1105	10014605
Potassium	TX	1125	10014605

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Selenium	TX	1140	10014605
Silver	TX	1150	10014605
Sodium	TX	1155	10014605
Strontium	TX	1160	10014605
Thallium	TX	1165	10014605
Tin	TX	1175	10014605
Titanium	TX	1180	10014605
Vanadium	TX	1185	10014605
Zinc	TX	1190	10014605

Method EPA 300.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10053006
Chloride	TX	1575	10053006
Fluoride	TX	1730	10053006
Nitrate as N	TX	1810	10053006
Nitrate-nitrite	TX	1820	10053006
Nitrite as N	TX	1840	10053006
Sulfate	TX	2000	10053006

Method EPA 310.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Alkalinity as CaCO3	TX	1505	10054805

Method EPA 350.3

Analyte	**AB**	**Analyte ID**	**Method ID**
Ammonia as N	TX	1515	10064401

Method EPA 365.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Orthophosphate as P	TX	1870	10070403
Phosphorus	TX	1910	10070403

Method EPA 6020

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10156204

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Antimony	TX	1005	10156204
Arsenic	TX	1010	10156204
Barium	TX	1015	10156204
Beryllium	TX	1020	10156204
Boron	TX	1025	10156204
Cadmium	TX	1030	10156204
Calcium	TX	1035	10156204
Chromium	TX	1040	10156204
Cobalt	TX	1050	10156204
Copper	TX	1055	10156204
Iron	TX	1070	10156204
Lead	TX	1075	10156204
Lithium	TX	1080	10156204
Magnesium	TX	1085	10156204
Manganese	TX	1090	10156204
Molybdenum	TX	1100	10156204
Nickel	TX	1105	10156204
Potassium	TX	1125	10156204
Selenium	TX	1140	10156204
Silver	TX	1150	10156204
Sodium	TX	1155	10156204
Strontium	TX	1160	10156204
Thallium	TX	1165	10156204
Tin	TX	1175	10156204
Titanium	TX	1180	10156204
Vanadium	TX	1185	10156204
Zinc	TX	1190	10156204

Method EPA 7196

Analyte	AB	Analyte ID	Method ID
Chromium (VI)	TX	1045	10162400

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Method EPA 7470

Analyte	AB	Analyte ID	Method ID
Mercury	TX	1095	10165807

Method EPA 7471

Analyte	AB	Analyte ID	Method ID
Mercury	TX	1095	10166208

Method EPA 8015

Analyte	AB	Analyte ID	Method ID
Diesel range organics (DRO)	TX	9369	10173203
Ethylene glycol	TX	4785	10173203
Gasoline range organics (GRO)	TX	9408	10173203
Propylene Glycol	TX	6657	10173203

Method EPA 8021

Analyte	AB	Analyte ID	Method ID
Benzene	TX	4375	10174808
Ethylbenzene	TX	4765	10174808
m+p-xylene	TX	5240	10174808
Methyl tert-butyl ether (MTBE)	TX	5000	10174808
o-Xylene	TX	5250	10174808
Toluene	TX	5140	10174808
Xylene (total)	TX	5260	10174808

Method EPA 8082

Analyte	AB	Analyte ID	Method ID
Aroclor-1016 (PCB-1016)	TX	8880	10179007
Aroclor-1221 (PCB-1221)	TX	8885	10179007
Aroclor-1232 (PCB-1232)	TX	8890	10179007
Aroclor-1242 (PCB-1242)	TX	8895	10179007
Aroclor-1248 (PCB-1248)	TX	8900	10179007
Aroclor-1254 (PCB-1254)	TX	8905	10179007
Aroclor-1260 (PCB-1260)	TX	8910	10179007
PCBs (total)	TX	8870	10179007

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Method EPA 8260

Analyte	AB	Analyte ID	Method ID
1,1,1,2-Tetrachloroethane	TX	5105	10184802
1,1,1-Trichloroethane	TX	5160	10184802
1,1,2,2-Tetrachloroethane	TX	5110	10184802
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TX	5195	10184802
1,1,2-Trichloroethane	TX	5165	10184802
1,1-Dichloroethane	TX	4630	10184802
1,1-Dichloroethylene	TX	4640	10184802
1,1-Dichloropropene	TX	4670	10184802
1,2,3-Trichlorobenzene	TX	5150	10184802
1,2,3-Trichloropropane	TX	5180	10184802
1,2,4-Trichlorobenzene	TX	5155	10184802
1,2,4-Trimethylbenzene	TX	5210	10184802
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10184802
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10184802
1,2-Dichlorobenzene	TX	4610	10184802
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10184802
1,2-Dichloropropane	TX	4655	10184802
1,3,5-Trimethylbenzene	TX	5215	10184802
1,3-Dichlorobenzene	TX	4615	10184802
1,3-Dichloropropane	TX	4660	10184802
1,4-Dichlorobenzene	TX	4620	10184802
1-Chlorohexane	TX	4510	10184802
2,2-Dichloropropane	TX	4665	10184802
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10184802
2-Chloroethyl vinyl ether	TX	4500	10184802
2-Chlorotoluene	TX	4535	10184802
2-Hexanone (MBK)	TX	4860	10184802
4-Chlorotoluene	TX	4540	10184802

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Solid & Chemical Materials*

4-Isopropyltoluene (p-Cymene)	TX	4915	10184802
4-Methyl-2-pentanone (MIBK)	TX	4995	10184802
Acetone (2-Propanone)	TX	4315	10184802
Acrolein (Propenal)	TX	4325	10184802
Acrylonitrile	TX	4340	10184802
Benzene	TX	4375	10184802
Bromobenzene	TX	4385	10184802
Bromochloromethane	TX	4390	10184802
Bromodichloromethane	TX	4395	10184802
Bromoform	TX	4400	10184802
Carbon disulfide	TX	4450	10184802
Carbon tetrachloride	TX	4455	10184802
Chlorobenzene	TX	4475	10184802
Chlorodibromomethane	TX	4575	10184802
Chloroethane (Ethyl chloride)	TX	4485	10184802
Chloroform	TX	4505	10184802
cis-1,2-Dichloroethylene	TX	4645	10184802
cis-1,3-Dichloropropene	TX	4680	10184802
Dibromomethane (Methylene bromide)	TX	4595	10184802
Dichlorodifluoromethane (Freon-12)	TX	4625	10184802
Ethylbenzene	TX	4765	10184802
Hexachlorobutadiene	TX	4835	10184802
Iodomethane (Methyl iodide)	TX	4870	10184802
Isopropyl alcohol (2-Propanol, Isopropanol)	TX	4895	10184802
Isopropylbenzene (Cumene)	TX	4900	10184802
m+p-xylene	TX	5240	10184802
Methyl acetate	TX	4940	10184802
Methyl bromide (Bromomethane)	TX	4950	10184802
Methyl chloride (Chloromethane)	TX	4960	10184802
Methyl tert-butyl ether (MTBE)	TX	5000	10184802

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Methylcyclohexane	TX	4965	10184802
Methylene chloride (Dichloromethane)	TX	4975	10184802
Naphthalene	TX	5005	10184802
n-Butylbenzene	TX	4435	10184802
n-Propylbenzene	TX	5090	10184802
o-Xylene	TX	5250	10184802
sec-Butylbenzene	TX	4440	10184802
Styrene	TX	5100	10184802
tert-Butylbenzene	TX	4445	10184802
Tetrachloroethylene (Perchloroethylene)	TX	5115	10184802
Toluene	TX	5140	10184802
trans-1,2-Dichloroethylene	TX	4700	10184802
trans-1,3-Dichloropropylene	TX	4685	10184802
trans-1,4-Dichloro-2-butene	TX	4605	10184802
Trichloroethene (Trichloroethylene)	TX	5170	10184802
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10184802
Vinyl acetate	TX	5225	10184802
Vinyl chloride	TX	5235	10184802
Xylene (total)	TX	5260	10184802

Method EPA 8270

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10185805
1,2,4-Trichlorobenzene	TX	5155	10185805
1,2-Dichlorobenzene	TX	4610	10185805
1,2-Diphenylhydrazine	TX	6220	10185805
1,3-Dichlorobenzene	TX	4615	10185805
1,4-Dichlorobenzene	TX	4620	10185805
1-Naphthylamine	TX	6425	10185805
2,3,4,6-Tetrachlorophenol	TX	6735	10185805
2,4,5-Trichlorophenol	TX	6835	10185805

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

2,4,6-Trichlorophenol	TX	6840	10185805
2,4-Dichlorophenol	TX	6000	10185805
2,4-Dimethylphenol	TX	6130	10185805
2,4-Dinitrophenol	TX	6175	10185805
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10185805
2,6-Dichlorophenol	TX	6005	10185805
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10185805
2-Chloronaphthalene	TX	5795	10185805
2-Chlorophenol	TX	5800	10185805
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10185805
2-Methylnaphthalene	TX	6385	10185805
2-Methylphenol (o-Cresol)	TX	6400	10185805
2-Naphthylamine	TX	6430	10185805
2-Nitroaniline	TX	6460	10185805
2-Nitrophenol	TX	6490	10185805
2-Picoline (2-Methylpyridine)	TX	5050	10185805
3,3'-Dichlorobenzidine	TX	5945	10185805
3-Methylcholanthrene	TX	6355	10185805
3-Nitroaniline	TX	6465	10185805
4,4'-DDD	TX	7355	10185203
4,4'-DDE	TX	7360	10186002
4,4'-DDT	TX	7365	10185407
4-Aminobiphenyl	TX	5540	10185805
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10185805
4-Chloro-3-methylphenol	TX	5700	10185805
4-Chloroaniline	TX	5745	10185805
4-Chlorophenyl phenylether	TX	5825	10185805
4-Dimethyl aminoazobenzene	TX	6105	10185805
4-Methylphenol (p-Cresol)	TX	6410	10185805
4-Nitroaniline	TX	6470	10185805

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

4-Nitrophenol	TX	6500	10185805
7,12-Dimethylbenz(a) anthracene	TX	6115	10185805
a-a-Dimethylphenethylamine	TX	6125	10185805
Acenaphthene	TX	5500	10185805
Acenaphthylene	TX	5505	10185805
Acetophenone	TX	5510	10185805
Aldrin	TX	7025	10186002
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10185407
alpha-Chlordane	TX	7240	10185805
Aniline	TX	5545	10185805
Anthracene	TX	5555	10185805
Aroclor-1016 (PCB-1016)	TX	8880	10186002
Aroclor-1221 (PCB-1221)	TX	8885	10185805
Aroclor-1232 (PCB-1232)	TX	8890	10185407
Aroclor-1242 (PCB-1242)	TX	8895	10185407
Aroclor-1248 (PCB-1248)	TX	8900	10185805
Aroclor-1254 (PCB-1254)	TX	8905	10185805
Aroclor-1260 (PCB-1260)	TX	8910	10185407
Atrazine	TX	7065	10185805
Azinphos-methyl (Guthion)	TX	7075	10185203
Benzidine	TX	5595	10185805
Benzo(a)anthracene	TX	5575	10185805
Benzo(a)pyrene	TX	5580	10185805
Benzo(b)fluoranthene	TX	5585	10185805
Benzo(e)pyrene	TX	5605	10185805
Benzo(g,h,i)perylene	TX	5590	10185805
Benzo(k)fluoranthene	TX	5600	10185805
Benzoic acid	TX	5610	10185805
Benzyl alcohol	TX	5630	10185805
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10185601

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11

DHL Analytical, Inc.

Expiration Date: 4/30/2014

2300 Double Creek Drive
Round Rock, TX 78664-3801

Issue Date: 6/11/2013

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Biphenyl	TX	5640	10185805
bis(2-Chloroethoxy)methane	TX	5760	10185805
bis(2-Chloroethyl) ether	TX	5765	10185805
bis(2-Chloroisopropyl) ether	TX	5780	10185805
bis(2-Ethylhexyl) phthalate (DEHP)	TX	6255	10185805
Butyl benzyl phthalate	TX	5670	10185805
Caprolactam	TX	7180	10185805
Carbaryl (Sevin)	TX	7195	10185601
Carbazole	TX	5680	10185805
Carbophenothion	TX	7220	10185805
Chlordane (tech.)	TX	7250	10185805
Chlorfenvinphos	TX	7255	10185203
Chrysene	TX	5855	10185805
Coumaphos	TX	7315	10185805
Crotoxyphos	TX	7330	10185203
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10186002
Demeton	TX	7390	10185805
Demeton-o	TX	7395	10185805
Demeton-s	TX	7385	10185601
Dibenz(a,h) anthracene	TX	5895	10185805
Dibenzofuran	TX	5905	10185805
Dichlorovos (DDVP, Dichlorvos)	TX	8610	10185805
Dicrotophos	TX	7465	10185805
Dieldrin	TX	7470	10185407
Diethyl phthalate	TX	6070	10185805
Dimethoate	TX	7475	10185805
Dimethyl phthalate	TX	6135	10185805
Di-n-butyl phthalate	TX	5925	10185805
Di-n-octyl phthalate	TX	6200	10185805
Dioxathion	TX	7495	10185601

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Diphenylamine	TX	6205	10185805
Disulfoton	TX	8625	10185407
Endosulfan I	TX	7510	10185601
Endosulfan II	TX	7515	10185805
Endosulfan sulfate	TX	7520	10186002
Endrin	TX	7540	10185601
Endrin aldehyde	TX	7530	10186002
Endrin ketone	TX	7535	10186002
EPN (Phosphonothioic acid, phenyl-, O-ethyl O-(p-nitrophenyl) ester)	TX	7550	10186002
Ethion	TX	7565	10185203
Ethyl methanesulfonate	TX	6260	10185805
Famphur	TX	7580	10186002
Fensulfothion	TX	7600	10185805
Fenthion	TX	7605	10186002
Fluoranthene	TX	6265	10185805
Fluorene	TX	6270	10185805
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10185407
gamma-Chlordane	TX	7245	10185601
Heptachlor	TX	7685	10185601
Heptachlor epoxide	TX	7690	10185203
Hexachlorobenzene	TX	6275	10185805
Hexachlorobutadiene	TX	4835	10185805
Hexachlorocyclopentadiene	TX	6285	10185805
Hexachloroethane	TX	4840	10185805
Hexachlorophene	TX	6290	10185601
Indeno(1,2,3-cd) pyrene	TX	6315	10185805
Isodrin	TX	7725	10185203
Isophorone	TX	6320	10185805
Leptophos	TX	7755	10185407
Malathion	TX	7770	10185601

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Methoxychlor	TX	7810	10185203
Methyl methanesulfonate	TX	6375	10185805
Methyl parathion (Parathion, methyl)	TX	7825	10185203
Mevinphos	TX	7850	10185805
Monocrotophos	TX	7880	10185805
Naled	TX	7905	10185805
Naphthalene	TX	5005	10185805
Nitrobenzene	TX	5015	10185805
n-Nitrosodiethylamine	TX	6525	10185805
n-Nitrosodimethylamine	TX	6530	10185805
n-Nitrosodi-n-butylamine	TX	5025	10185805
n-Nitrosodi-n-propylamine	TX	6545	10185805
n-Nitrosodiphenylamine	TX	6535	10185805
n-Nitrosopiperidine	TX	6560	10185805
Parathion, ethyl	TX	7955	10185805
Pentachlorobenzene	TX	6590	10185805
Pentachloronitrobenzene (PCNB)	TX	6600	10185805
Pentachlorophenol	TX	6605	10185805
Phenacetin	TX	6610	10185805
Phenanthrene	TX	6615	10185805
Phenol	TX	6625	10185805
Phorate	TX	7985	10185407
Phosmet (Imidan)	TX	8000	10185203
Phosphamidon	TX	8005	10186002
Pronamide (Kerb)	TX	6650	10185805
Pyrene	TX	6665	10185805
Pyridine	TX	5095	10185805
Quinoline	TX	6670	10185805
Sulfotepp	TX	8155	10185203
Terbufos	TX	8185	10185805

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11
Expiration Date: 4/30/2014
Issue Date: 6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Tetrachlorvinphos (Stirophos, Gardona)	TX	8197	10186002
Tetraethyl pyrophosphate (TEPP)	TX	8210	10185407
Toxaphene (Chlorinated camphene)	TX	8250	10185203

Method EPA 8321

Analyte	**AB**	**Analyte ID**	**Method ID**
2,4,5-T	TX	8655	10188804
2,4-D	TX	8545	10188804
2,4-DB	TX	8560	10188804
Dalapon	TX	8555	10188804
Dicamba	TX	8595	10188804
Dichloroprop (Dichlorprop, Weedone)	TX	8605	10188804
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	TX	8620	10188804
MCPA	TX	7775	10188804
MCPP	TX	7780	10188804
Silvex (2,4,5-TP)	TX	8650	10188804

Method EPA 8330

Analyte	**AB**	**Analyte ID**	**Method ID**
1,3,5-Trinitrobenzene (1,3,5-TNB)	TX	6885	10189807
1,3-Dinitrobenzene (1,3-DNB)	TX	6160	10189807
2,4,6-Trinitrotoluene (2,4,6-TNT)	TX	9651	10189807
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10189807
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10189807
2-Amino-4,6-dinitrotoluene (2-am-dnt)	TX	9303	10189807
2-Nitrotoluene	TX	9507	10189807
3-Nitrotoluene	TX	9510	10189807
4-Amino-2,6-dinitrotoluene (4-am-dnt)	TX	9306	10189807
4-Nitrotoluene	TX	9513	10189807
Methyl-2,4,6-trinitrophenylnitramine (tetryl)	TX	6415	10189807
Nitrobenzene	TX	5015	10189807
Nitroglycerin	TX	6485	10189807
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	TX	9522	10189807

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate:	T104704211-13-11
Expiration Date:	4/30/2014
Issue Date:	6/11/2013

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Solid & Chemical Materials*

Pentaerythritoltetranitrate (PETN)	TX	9558	10189807
RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine)	TX	9432	10189807

Method EPA 9014

Analyte	AB	Analyte ID	Method ID
Amenable cyanide	TX	1510	10193803
Total Cyanide	TX	1635	10193803

Method EPA 9040

Analyte	AB	Analyte ID	Method ID
Corrosivity	TX	1615	10197203
pH	TX	1900	10197203

Method EPA 9045

Analyte	AB	Analyte ID	Method ID
pH	TX	1900	10198400

Method EPA 9056

Analyte	AB	Analyte ID	Method ID
Bromide	TX	1540	10199209
Chloride	TX	1575	10199209
Fluoride	TX	1730	10199209
Nitrate as N	TX	1810	10199209
Nitrate-nitrite	TX	1820	10199209
Nitrite as N	TX	1840	10199209
Sulfate	TX	2000	10199209

Method SM 2320 B

Analyte	AB	Analyte ID	Method ID
Alkalinity as CaCO3	TX	1505	20045618

Method SM 2510 B

Analyte	AB	Analyte ID	Method ID
Conductivity	TX	1610	20048617

Method SSA/ASA Part 3:14

Analyte	AB	Analyte ID	Method ID
Conductivity	TX	1610	SSA/ASA Pt 3:14

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-13-11

DHL Analytical, Inc.

Expiration Date: 4/30/2014

2300 Double Creek Drive
Round Rock, TX 78664-3801

Issue Date: 6/11/2013

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Method TCEQ 1005

Analyte	AB	Analyte ID	Method ID
Total Petroleum Hydrocarbons (TPH)	TX	2050	90019208

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Drinking Water***

Method EPA 200.8

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10014605
Antimony	TX	1005	10014605
Arsenic	TX	1010	10014605
Barium	TX	1015	10014605
Beryllium	TX	1020	10014605
Cadmium	TX	1030	10014605
Chromium	TX	1040	10014605
Copper	TX	1055	10014605
Lead	TX	1075	10014605
Manganese	TX	1090	10014605
Nickel	TX	1105	10014605
Selenium	TX	1140	10014605
Silver	TX	1150	10014605
Thallium	TX	1165	10014605
Uranium	TX	3035	10014605
Zinc	TX	1190	10014605

Method EPA 245.1

Analyte	AB	Analyte ID	Method ID
Mercury	TX	1095	10036609

Method EPA 300.0

Analyte	AB	Analyte ID	Method ID
Fluoride	TX	1730	10053006
Nitrate as N	TX	1810	10053006
Nitrite as N	TX	1840	10053006

Method EPA 335.2

Analyte	AB	Analyte ID	Method ID
Total Cyanide	TX	1635	10060409

Method SM 4500-CN^- E

Analyte	AB	Analyte ID	Method ID

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12

DHL Analytical, Inc.

Expiration Date: 4/30/2015

2300 Double Creek Drive
Round Rock, TX 78664-3801

Issue Date: 5/1/2014

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Drinking Water***

Total Cyanide	TX	1635	20096428

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

Method EPA 1010

Analyte	AB	Analyte ID	Method ID
Ignitability	TX	1780	10116606

Method EPA 120.1

Analyte	AB	Analyte ID	Method ID
Conductivity	TX	1610	10006403

Method EPA 1311

Analyte	AB	Analyte ID	Method ID
TCLP	TX	849	10118806

Method EPA 1312

Analyte	AB	Analyte ID	Method ID
SPLP	TX	850	10119003

Method EPA 150.1

Analyte	AB	Analyte ID	Method ID
pH	TX	1900	10008409

Method EPA 160.1

Analyte	AB	Analyte ID	Method ID
Residue-filterable (TDS)	TX	1955	10009208

Method EPA 160.2

Analyte	AB	Analyte ID	Method ID
Residue-nonfilterable (TSS)	TX	1960	10009606

Method EPA 1664

Analyte	AB	Analyte ID	Method ID
n-Hexane Extractable Material (HEM) (O&G)	TX	1803	10127807

Method EPA 180.1

Analyte	AB	Analyte ID	Method ID
Turbidity	TX	2055	10011606

Method EPA 200.8

Analyte	AB	Analyte ID	Method ID
Aluminum	TX	1000	10014605
Antimony	TX	1005	10014605
Arsenic	TX	1010	10014605

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

Barium	TX	1015	10014605
Beryllium	TX	1020	10014605
Boron	TX	1025	10014605
Cadmium	TX	1030	10014605
Calcium	TX	1035	10014605
Chromium	TX	1040	10014605
Cobalt	TX	1050	10014605
Copper	TX	1055	10014605
Iron	TX	1070	10014605
Lead	TX	1075	10014605
Magnesium	TX	1085	10014605
Manganese	TX	1090	10014605
Molybdenum	TX	1100	10014605
Nickel	TX	1105	10014605
Potassium	TX	1125	10014605
Selenium	TX	1140	10014605
Silver	TX	1150	10014605
Sodium	TX	1155	10014605
Strontium	TX	1160	10014605
Thallium	TX	1165	10014605
Tin	TX	1175	10014605
Titanium	TX	1180	10014605
Vanadium	TX	1185	10014605
Zinc	TX	1190	10014605

Method EPA 245.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10036609

Method EPA 300.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10053006
Chloride	TX	1575	10053006

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

Fluoride	TX	1730	10053006
Nitrate as N	TX	1810	10053006
Nitrate-nitrite	TX	1820	10053006
Nitrite as N	TX	1840	10053006
Sulfate	TX	2000	10053006

Method EPA 305.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Acidity, as CaCO3	TX	1500	10054203

Method EPA 310.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Alkalinity as CaCO3	TX	1505	10054805

Method EPA 335.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	10060001

Method EPA 335.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Total cyanide	TX	1645	10060205

Method EPA 365.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Orthophosphate as P	TX	1870	10070403
Phosphorus	TX	1910	10070403

Method EPA 376.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfide	TX	2005	10074609

Method EPA 415.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Organic Carbon (TOC)	TX	2040	10078407

Method EPA 602

Analyte	**AB**	**Analyte ID**	**Method ID**
Benzene	TX	4375	10102202
Ethylbenzene	TX	4765	10102202

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

m+p-xylene	TX	5240	10102202
Methyl tert-butyl ether (MTBE)	TX	5000	10102202
o-Xylene	TX	5250	10102202
Toluene	TX	5140	10102202
Xylene (total)	TX	5260	10102202

Method EPA 6020

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10156204
Antimony	TX	1005	10156204
Arsenic	TX	1010	10156204
Barium	TX	1015	10156204
Beryllium	TX	1020	10156204
Boron	TX	1025	10156204
Cadmium	TX	1030	10156204
Calcium	TX	1035	10156204
Chromium	TX	1040	10156204
Cobalt	TX	1050	10156204
Copper	TX	1055	10156204
Iron	TX	1070	10156204
Lead	TX	1075	10156204
Lithium	TX	1080	10156204
Magnesium	TX	1085	10156204
Manganese	TX	1090	10156204
Molybdenum	TX	1100	10156204
Nickel	TX	1105	10156204
Potassium	TX	1125	10156204
Selenium	TX	1140	10156204
Silver	TX	1150	10156204
Sodium	TX	1155	10156204
Strontium	TX	1160	10156204

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

Thallium	TX	1165	10156204
Tin	TX	1175	10156204
Titanium	TX	1180	10156204
Vanadium	TX	1185	10156204
Zinc	TX	1190	10156204

Method EPA 608

Analyte	AB	Analyte ID	Method ID
Aroclor-1016 (PCB-1016)	TX	8880	10103603
Aroclor-1221 (PCB-1221)	TX	8885	10103603
Aroclor-1232 (PCB-1232)	TX	8890	10103603
Aroclor-1242 (PCB-1242)	TX	8895	10103603
Aroclor-1248 (PCB-1248)	TX	8900	10103603
Aroclor-1254 (PCB-1254)	TX	8905	10103603
Aroclor-1260 (PCB-1260)	TX	8910	10103603

Method EPA 624

Analyte	AB	Analyte ID	Method ID
1,1,1-Trichloroethane	TX	5160	10107207
1,1,2,2-Tetrachloroethane	TX	5110	10107207
1,1,2-Trichloroethane	TX	5165	10107207
1,1-Dichloroethane	TX	4630	10107207
1,1-Dichloroethylene	TX	4640	10107207
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10107207
1,2-Dichlorobenzene	TX	4610	10107207
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10107207
1,2-Dichloropropane	TX	4655	10107207
1,3-Dichlorobenzene	TX	4615	10107207
1,4-Dichlorobenzene	TX	4620	10107207
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10107207
2-Chloroethyl vinyl ether	TX	4500	10107207
Acetone (2-Propanone)	TX	4315	10107207
Acrolein (Propenal)	TX	4325	10107207

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

Acrylonitrile	TX	4340	10107207
Benzene	TX	4375	10107207
Bromodichloromethane	TX	4395	10107207
Bromoform	TX	4400	10107207
Carbon tetrachloride	TX	4455	10107207
Chlorobenzene	TX	4475	10107207
Chlorodibromomethane	TX	4575	10107207
Chloroethane (Ethyl chloride)	TX	4485	10107207
Chloroform	TX	4505	10107207
cis-1,2-Dichloroethylene	TX	4645	10107207
cis-1,3-Dichloropropene	TX	4680	10107207
Ethylbenzene	TX	4765	10107207
m+p-xylene	TX	5240	10107207
Methyl bromide (Bromomethane)	TX	4950	10107207
Methyl chloride (Chloromethane)	TX	4960	10107207
Methyl tert-butyl ether (MTBE)	TX	5000	10107207
Methylene chloride (Dichloromethane)	TX	4975	10107207
Naphthalene	TX	5005	10107207
o-Xylene	TX	5250	10107207
Tetrachloroethylene (Perchloroethylene)	TX	5115	10107207
Toluene	TX	5140	10107207
Total trihalomethanes	TX	5205	10107207
trans-1,2-Dichloroethylene	TX	4700	10107207
trans-1,3-Dichloropropylene	TX	4685	10107207
Trichloroethene (Trichloroethylene)	TX	5170	10107207
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10107207
Vinyl chloride	TX	5235	10107207
Xylene (total)	TX	5260	10107207

Method EPA 625

Analyte	**AB**	**Analyte ID**	**Method ID**

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Non-Potable Water*

1,2,4,5-Tetrachlorobenzene	TX	6715	10107401
1,2,4-Trichlorobenzene	TX	5155	10107401
1,2-Dichlorobenzene	TX	4610	10107401
1,2-Diphenylhydrazine	TX	6220	10107401
1,3-Dichlorobenzene	TX	4615	10107401
1,4-Dichlorobenzene	TX	4620	10107401
2,3,4,6-Tetrachlorophenol	TX	6735	10107401
2,4,5-Trichlorophenol	TX	6835	10107401
2,4,6-Trichlorophenol	TX	6840	10107401
2,4-Dichlorophenol	TX	6000	10107401
2,4-Dimethylphenol	TX	6130	10107401
2,4-Dinitrophenol	TX	6175	10107401
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10107401
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10107401
2-Chloronaphthalene	TX	5795	10107401
2-Chlorophenol	TX	5800	10107401
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10107401
2-Methylphenol (o-Cresol)	TX	6400	10107401
2-Nitrophenol	TX	6490	10107401
3,3'-Dichlorobenzidine	TX	5945	10107401
4,4'-DDD	TX	7355	10107401
4,4'-DDE	TX	7360	10107401
4,4'-DDT	TX	7365	10107401
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10107401
4-Chloro-3-methylphenol	TX	5700	10107401
4-Chlorophenyl phenylether	TX	5825	10107401
4-Methylphenol (p-Cresol)	TX	6410	10107401
4-Nitrophenol	TX	6500	10107401
Acenaphthene	TX	5500	10107401
Acenaphthylene	TX	5505	10107401

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Non-Potable Water*

Aldrin	TX	7025	10107401
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10107401
alpha-Chlordane	TX	7240	10107401
Anthracene	TX	5555	10107401
Aroclor-1016 (PCB-1016)	TX	8880	10107401
Aroclor-1221 (PCB-1221)	TX	8885	10107401
Aroclor-1232 (PCB-1232)	TX	8890	10107401
Aroclor-1242 (PCB-1242)	TX	8895	10107401
Aroclor-1248 (PCB-1248)	TX	8900	10107401
Aroclor-1254 (PCB-1254)	TX	8905	10107401
Aroclor-1260 (PCB-1260)	TX	8910	10107401
Benzidine	TX	5595	10107401
Benzo(a)anthracene	TX	5575	10107401
Benzo(a)pyrene	TX	5580	10107401
Benzo(b)fluoranthene	TX	5585	10107401
Benzo(g,h,i)perylene	TX	5590	10107401
Benzo(k)fluoranthene	TX	5600	10107401
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10107401
bis(2-Chloroethoxy)methane	TX	5760	10107401
bis(2-Chloroethyl) ether	TX	5765	10107401
bis(2-Chloroisopropyl) ether	TX	5780	10107401
bis(2-Ethylhexyl) phthalate (DEHP)	TX	6255	10107401
Butyl benzyl phthalate	TX	5670	10107401
Chrysene	TX	5855	10107401
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10107401
Dibenz(a,h) anthracene	TX	5895	10107401
Dieldrin	TX	7470	10107401
Diethyl phthalate	TX	6070	10107401
Dimethyl phthalate	TX	6135	10107401
Di-n-butyl phthalate	TX	5925	10107401

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Non-Potable Water*

Di-n-octyl phthalate	TX	6200	10107401
Endosulfan I	TX	7510	10107401
Endosulfan II	TX	7515	10107401
Endosulfan sulfate	TX	7520	10107401
Endrin	TX	7540	10107401
Endrin aldehyde	TX	7530	10107401
Fluoranthene	TX	6265	10107401
Fluorene	TX	6270	10107401
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10107401
gamma-Chlordane	TX	7245	10107401
Heptachlor	TX	7685	10107401
Heptachlor epoxide	TX	7690	10107401
Hexachlorobenzene	TX	6275	10107401
Hexachlorobutadiene	TX	4835	10107401
Hexachlorocyclopentadiene	TX	6285	10107401
Hexachloroethane	TX	4840	10107401
Indeno(1,2,3-cd) pyrene	TX	6315	10107401
Isophorone	TX	6320	10107401
Naphthalene	TX	5005	10107401
Nitrobenzene	TX	5015	10107401
n-Nitrosodiethylamine	TX	6525	10107401
n-Nitrosodimethylamine	TX	6530	10107401
n-Nitrosodi-n-butylamine	TX	5025	10107401
n-Nitrosodi-n-propylamine	TX	6545	10107401
n-Nitrosodiphenylamine	TX	6535	10107401
Pentachlorobenzene	TX	6590	10107401
Pentachlorophenol	TX	6605	10107401
Phenanthrene	TX	6615	10107401
Phenol	TX	6625	10107401
Pyrene	TX	6665	10107401

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

Pyridine	TX	5095	10107401
Toxaphene (Chlorinated camphene)	TX	8250	10107401

Method EPA 7196

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	TX	1045	10162400

Method EPA 7470

Analyte	**AB**	**Analyte ID**	**Method ID**
Mercury	TX	1095	10165807

Method EPA 8015

Analyte	**AB**	**Analyte ID**	**Method ID**
Diesel range organics (DRO)	TX	9369	10173203
Ethylene glycol	TX	4785	10173203
Gasoline range organics (GRO)	TX	9408	10173203
Propylene Glycol	TX	6657	10173203

Method EPA 8021

Analyte	**AB**	**Analyte ID**	**Method ID**
Benzene	TX	4375	10174808
Ethylbenzene	TX	4765	10174808
m+p-xylene	TX	5240	10174808
Methyl tert-butyl ether (MTBE)	TX	5000	10174808
o-Xylene	TX	5250	10174808
Toluene	TX	5140	10174808
Xylene (total)	TX	5260	10174808

Method EPA 8082

Analyte	**AB**	**Analyte ID**	**Method ID**
Aroclor-1016 (PCB-1016)	TX	8880	10179007
Aroclor-1221 (PCB-1221)	TX	8885	10179007
Aroclor-1232 (PCB-1232)	TX	8890	10179007
Aroclor-1242 (PCB-1242)	TX	8895	10179007
Aroclor-1248 (PCB-1248)	TX	8900	10179007
Aroclor-1254 (PCB-1254)	TX	8905	10179007

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

Aroclor-1260 (PCB-1260)	TX	8910	10179007
PCBs (total)	TX	8870	10179007

Method EPA 8260

Analyte	AB	Analyte ID	Method ID
1,1,1,2-Tetrachloroethane	TX	5105	10184802
1,1,1-Trichloroethane	TX	5160	10184802
1,1,2,2-Tetrachloroethane	TX	5110	10184802
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TX	5195	10184802
1,1,2-Trichloroethane	TX	5165	10184802
1,1-Dichloroethane	TX	4630	10184802
1,1-Dichloroethylene	TX	4640	10184802
1,1-Dichloropropene	TX	4670	10184802
1,2,3-Trichlorobenzene	TX	5150	10184802
1,2,3-Trichloropropane	TX	5180	10184802
1,2,4-Trichlorobenzene	TX	5155	10184802
1,2,4-Trimethylbenzene	TX	5210	10184802
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10184802
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10184802
1,2-Dichlorobenzene	TX	4610	10184802
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10184802
1,2-Dichloropropane	TX	4655	10184802
1,3,5-Trimethylbenzene	TX	5215	10184802
1,3-Dichlorobenzene	TX	4615	10184802
1,3-Dichloropropane	TX	4660	10184802
1,4-Dichlorobenzene	TX	4620	10184802
1-Chlorohexane	TX	4510	10184802
2,2-Dichloropropane	TX	4665	10184802
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10184802
2-Chloroethyl vinyl ether	TX	4500	10184802
2-Chlorotoluene	TX	4535	10184802

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Non-Potable Water*

2-Hexanone (MBK)	TX	4860	10184802
4-Chlorotoluene	TX	4540	10184802
4-Isopropyltoluene (p-Cymene)	TX	4915	10184802
4-Methyl-2-pentanone (MIBK)	TX	4995	10184802
Acetone (2-Propanone)	TX	4315	10184802
Acrolein (Propenal)	TX	4325	10184802
Acrylonitrile	TX	4340	10184802
Benzene	TX	4375	10184802
Bromobenzene	TX	4385	10184802
Bromochloromethane	TX	4390	10184802
Bromodichloromethane	TX	4395	10184802
Bromoform	TX	4400	10184802
Carbon disulfide	TX	4450	10184802
Carbon tetrachloride	TX	4455	10184802
Chlorobenzene	TX	4475	10184802
Chlorodibromomethane	TX	4575	10184802
Chloroethane (Ethyl chloride)	TX	4485	10184802
Chloroform	TX	4505	10184802
cis-1,2-Dichloroethylene	TX	4645	10184802
cis-1,3-Dichloropropene	TX	4680	10184802
Dibromomethane (Methylene bromide)	TX	4595	10184802
Dichlorodifluoromethane (Freon-12)	TX	4625	10184802
Ethylbenzene	TX	4765	10184802
Ethyl-t-butylether (ETBE) (2-Ethoxy-2-methylpropane)	TX	4770	10184802
Hexachlorobutadiene	TX	4835	10184802
Iodomethane (Methyl iodide)	TX	4870	10184802
Isopropyl ether	TX	4905	10184802
Isopropylbenzene (Cumene)	TX	4900	10184802
m+p-xylene	TX	5240	10184802
Methyl acetate	TX	4940	10184802

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

Methyl bromide (Bromomethane)	TX	4950	10184802
Methyl chloride (Chloromethane)	TX	4960	10184802
Methyl tert-butyl ether (MTBE)	TX	5000	10184802
Methylcyclohexane	TX	4965	10184802
Methylene chloride (Dichloromethane)	TX	4975	10184802
Naphthalene	TX	5005	10184802
n-Butylbenzene	TX	4435	10184802
n-Propylbenzene	TX	5090	10184802
o-Xylene	TX	5250	10184802
sec-Butylbenzene	TX	4440	10184802
Styrene	TX	5100	10184802
T-amylmethylether (TAME)	TX	4370	10184802
tert-Butyl alcohol	TX	4420	10184802
tert-Butylbenzene	TX	4445	10184802
Tetrachloroethylene (Perchloroethylene)	TX	5115	10184802
Toluene	TX	5140	10184802
Total trihalomethanes	TX	5205	10184802
trans-1,2-Dichloroethylene	TX	4700	10184802
trans-1,3-Dichloropropylene	TX	4685	10184802
trans-1,4-Dichloro-2-butene	TX	4605	10184802
Trichloroethene (Trichloroethylene)	TX	5170	10184802
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10184802
Vinyl acetate	TX	5225	10184802
Vinyl chloride	TX	5235	10184802
Xylene (total)	TX	5260	10184802

Method EPA 8270

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10185805
1,2,4-Trichlorobenzene	TX	5155	10185805
1,2-Dichlorobenzene	TX	4610	10185805

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Non-Potable Water*

1,2-Diphenylhydrazine	TX	6220	10185805
1,3-Dichlorobenzene	TX	4615	10185805
1,4-Dichlorobenzene	TX	4620	10185805
1-Naphthylamine	TX	6425	10185805
2,3,4,6-Tetrachlorophenol	TX	6735	10185805
2,4,5-Trichlorophenol	TX	6835	10185805
2,4,6-Trichlorophenol	TX	6840	10185805
2,4-Dichlorophenol	TX	6000	10185805
2,4-Dimethylphenol	TX	6130	10185805
2,4-Dinitrophenol	TX	6175	10185805
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10185805
2,6-Dichlorophenol	TX	6005	10185805
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10185805
2-Chloronaphthalene	TX	5795	10185805
2-Chlorophenol	TX	5800	10185805
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10185805
2-Methylnaphthalene	TX	6385	10185805
2-Methylphenol (o-Cresol)	TX	6400	10185805
2-Naphthylamine	TX	6430	10185805
2-Nitroaniline	TX	6460	10185805
2-Nitrophenol	TX	6490	10185805
2-Picoline (2-Methylpyridine)	TX	5050	10185805
3,3'-Dichlorobenzidine	TX	5945	10185805
3-Methylcholanthrene	TX	6355	10185805
3-Nitroaniline	TX	6465	10185805
4,4'-DDD	TX	7355	10185805
4,4'-DDE	TX	7360	10186002
4,4'-DDT	TX	7365	10185805
4-Aminobiphenyl	TX	5540	10185805
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10185805

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Non-Potable Water*

4-Chloro-3-methylphenol	TX	5700	10185805
4-Chloroaniline	TX	5745	10185805
4-Chlorophenyl phenylether	TX	5825	10185805
4-Dimethyl aminoazobenzene	TX	6105	10185805
4-Methylphenol (p-Cresol)	TX	6410	10185805
4-Nitroaniline	TX	6470	10185805
4-Nitrophenol	TX	6500	10185805
7,12-Dimethylbenz(a) anthracene	TX	6115	10185805
a-a-Dimethylphenethylamine	TX	6125	10185805
Acenaphthene	TX	5500	10185805
Acenaphthylene	TX	5505	10185805
Acetophenone	TX	5510	10185805
Aldrin	TX	7025	10186002
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10186002
alpha-Chlordane	TX	7240	10185601
Aniline	TX	5545	10185805
Anthracene	TX	5555	10185805
Aroclor-1016 (PCB-1016)	TX	8880	10186002
Aroclor-1221 (PCB-1221)	TX	8885	10185203
Aroclor-1232 (PCB-1232)	TX	8890	10185407
Aroclor-1242 (PCB-1242)	TX	8895	10185203
Aroclor-1248 (PCB-1248)	TX	8900	10186002
Aroclor-1254 (PCB-1254)	TX	8905	10185601
Aroclor-1260 (PCB-1260)	TX	8910	10185203
Atrazine	TX	7065	10185805
Azinphos-methyl (Guthion)	TX	7075	10185805
Benzidine	TX	5595	10185805
Benzo(a)anthracene	TX	5575	10185805
Benzo(a)pyrene	TX	5580	10185805
Benzo(b)fluoranthene	TX	5585	10185805

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Non-Potable Water*

Benzo(e)pyrene	TX	5605	10185805
Benzo(g,h,i)perylene	TX	5590	10185805
Benzo(k)fluoranthene	TX	5600	10185805
Benzoic acid	TX	5610	10185805
Benzyl alcohol	TX	5630	10185805
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10185203
Biphenyl	TX	5640	10185805
bis(2-Chloroethoxy)methane	TX	5760	10185805
bis(2-Chloroethyl) ether	TX	5765	10185805
bis(2-Chloroisopropyl) ether	TX	5780	10185805
bis(2-Ethylhexyl) phthalate (DEHP)	TX	6255	10185805
Butyl benzyl phthalate	TX	5670	10185805
Caprolactam	TX	7180	10185805
Carbaryl (Sevin)	TX	7195	10185407
Carbazole	TX	5680	10185805
Carbophenothion	TX	7220	10185407
Chlordane (tech.)	TX	7250	10185203
Chlorfenvinphos	TX	7255	10185805
Chrysene	TX	5855	10185805
Coumaphos	TX	7315	10186002
Crotoxyphos	TX	7330	10185407
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10185805
Demeton	TX	7390	10185407
Demeton-o	TX	7395	10185203
Demeton-s	TX	7385	10185601
Dibenz(a,h) anthracene	TX	5895	10185805
Dibenzofuran	TX	5905	10185805
Dichlorovos (DDVP, Dichlorvos)	TX	8610	10186002
Dicrotophos	TX	7465	10185407
Dieldrin	TX	7470	10186002

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Non-Potable Water*

Diethyl phthalate	TX	6070	10185805
Dimethoate	TX	7475	10185805
Dimethyl phthalate	TX	6135	10185805
Di-n-butyl phthalate	TX	5925	10185805
Di-n-octyl phthalate	TX	6200	10185805
Dioxathion	TX	7495	10185203
Diphenylamine	TX	6205	10185805
Disulfoton	TX	8625	10185601
Endosulfan I	TX	7510	10185805
Endosulfan II	TX	7515	10185203
Endosulfan sulfate	TX	7520	10185601
Endrin	TX	7540	10185203
Endrin aldehyde	TX	7530	10185805
Endrin ketone	TX	7535	10186002
EPN (Phosphonothioic acid, phenyl-, O-ethyl O-(p-nitrophenyl) ester)	TX	7550	10186002
Ethion	TX	7565	10185805
Ethyl methanesulfonate	TX	6260	10185805
Famphur	TX	7580	10185407
Fensulfothion	TX	7600	10185203
Fenthion	TX	7605	10186002
Fluoranthene	TX	6265	10185805
Fluorene	TX	6270	10185805
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10185203
gamma-Chlordane	TX	7245	10185203
Heptachlor	TX	7685	10185601
Heptachlor epoxide	TX	7690	10185805
Hexachlorobenzene	TX	6275	10185805
Hexachlorobutadiene	TX	4835	10185805
Hexachlorocyclopentadiene	TX	6285	10185805
Hexachloroethane	TX	4840	10185805

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Non-Potable Water*

Hexachlorophene	TX	6290	10185805
Indeno(1,2,3-cd) pyrene	TX	6315	10185805
Isodrin	TX	7725	10185407
Isophorone	TX	6320	10185805
Leptophos	TX	7755	10186002
Malathion	TX	7770	10186002
Methoxychlor	TX	7810	10185601
Methyl methanesulfonate	TX	6375	10185805
Methyl parathion (Parathion, methyl)	TX	7825	10185203
Mevinphos	TX	7850	10186002
Monocrotophos	TX	7880	10185203
Naled	TX	7905	10185203
Naphthalene	TX	5005	10185805
Nitrobenzene	TX	5015	10185805
n-Nitrosodiethylamine	TX	6525	10185805
n-Nitrosodimethylamine	TX	6530	10185805
n-Nitrosodi-n-butylamine	TX	5025	10185805
n-Nitrosodi-n-propylamine	TX	6545	10185805
n-Nitrosodiphenylamine	TX	6535	10185805
n-Nitrosopiperidine	TX	6560	10185805
Parathion, ethyl	TX	7955	10185805
Pentachlorobenzene	TX	6590	10185805
Pentachloronitrobenzene (PCNB)	TX	6600	10185805
Pentachlorophenol	TX	6605	10185805
Phenacetin	TX	6610	10185805
Phenanthrene	TX	6615	10185805
Phenol	TX	6625	10185805
Phorate	TX	7985	10186002
Phosmet (Imidan)	TX	8000	10186002
Phosphamidon	TX	8005	10185805

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

Pronamide (Kerb)	TX	6650	10185805
Pyrene	TX	6665	10185805
Pyridine	TX	5095	10185805
Quinoline	TX	6670	10185805
Sulfotepp	TX	8155	10186002
Terbufos	TX	8185	10185805
Tetrachlorvinphos (Stirophos, Gardona)	TX	8197	10186002
Tetraethyl pyrophosphate (TEPP)	TX	8210	10185407
Toxaphene (Chlorinated camphene)	TX	8250	10185203

Method EPA 8321

Analyte	**AB**	**Analyte ID**	**Method ID**
2,4,5-T	TX	8655	10188804
2,4-D	TX	8545	10188804
2,4-DB	TX	8560	10188804
Dalapon	TX	8555	10188804
Dicamba	TX	8595	10188804
Dichloroprop (Dichlorprop, Weedone)	TX	8605	10188804
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	TX	8620	10188804
MCPA	TX	7775	10188804
MCPP	TX	7780	10188804
Silvex (2,4,5-TP)	TX	8650	10188804

Method EPA 8330

Analyte	**AB**	**Analyte ID**	**Method ID**
1,3,5-Trinitrobenzene (1,3,5-TNB)	TX	6885	10189807
1,3-Dinitrobenzene (1,3-DNB)	TX	6160	10189807
2,4,6-Trinitrotoluene (2,4,6-TNT)	TX	9651	10189807
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10189807
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10189807
2-Amino-4,6-dinitrotoluene (2-am-dnt)	TX	9303	10189807
2-Nitrotoluene	TX	9507	10189807
3-Nitrotoluene	TX	9510	10189807

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

4-Amino-2,6-dinitrotoluene (4-am-dnt)	TX	9306	10189807
4-Nitrotoluene	TX	9513	10189807
Methyl-2,4,6-trinitrophenylnitramine (tetryl)	TX	6415	10189807
Nitrobenzene	TX	5015	10189807
Nitroglycerin	TX	6485	10189807
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	TX	9522	10189807
Pentaerythritoltetranitrate (PETN)	TX	9558	10189807
RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine)	TX	9432	10189807

Method EPA 9014

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	10193803
Total Cyanide	TX	1635	10193803

Method EPA 9040

Analyte	**AB**	**Analyte ID**	**Method ID**
pH	TX	1900	10197203

Method EPA 9056

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10199209
Chloride	TX	1575	10199209
Fluoride	TX	1730	10199209
Nitrate as N	TX	1810	10199209
Nitrate-nitrite	TX	1820	10199209
Nitrite as N	TX	1840	10199209
Sulfate	TX	2000	10199209

Method EPA 9060

Analyte	**AB**	**Analyte ID**	**Method ID**
Total Organic Carbon (TOC)	TX	2040	10200201

Method EPA 9070

Analyte	**AB**	**Analyte ID**	**Method ID**
n-Hexane Extractable Material (HEM) (O&G)	TX	1803	10201000

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

Method EPA RSK 175

Analyte	AB	Analyte ID	Method ID
Carbon dioxide	TX	3755	10212905
Ethane	TX	4747	10212905
Ethene	TX	4752	10212905
Methane	TX	4926	10212905

Method HACH 8000

Analyte	AB	Analyte ID	Method ID
Chemical oxygen demand (COD)	TX	1565	60003001

Method SM 2130 B

Analyte	AB	Analyte ID	Method ID
Turbidity	TX	2055	20048220

Method SM 2310 B (4a)

Analyte	AB	Analyte ID	Method ID
Acidity, as CaCO3	TX	1500	20044615

Method SM 2320 B

Analyte	AB	Analyte ID	Method ID
Alkalinity as CaCO3	TX	1505	20045618

Method SM 2340 B

Analyte	AB	Analyte ID	Method ID
Total hardness as CaCO3	TX	1755	20046611

Method SM 2510 B

Analyte	AB	Analyte ID	Method ID
Conductivity	TX	1610	20048617

Method SM 2540 C

Analyte	AB	Analyte ID	Method ID
Residue-filterable (TDS)	TX	1955	20050413

Method SM 2540 D

Analyte	AB	Analyte ID	Method ID
Residue-nonfilterable (TSS)	TX	1960	20051212

Method SM 3500-Cr D

Analyte	AB	Analyte ID	Method ID

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Non-Potable Water***

Chromium	TX	1040	20066266
Method SM 4500-CN¯ E			
Analyte	**AB**	**Analyte ID**	**Method ID**
Total Cyanide	TX	1635	20096428
Method SM 4500-CN¯ G			
Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	20097227
Method SM 4500-H+ B			
Analyte	**AB**	**Analyte ID**	**Method ID**
pH	TX	1900	20105220
Method SM 4500-NH3 F			
Analyte	**AB**	**Analyte ID**	**Method ID**
Ammonia as N	TX	1515	20109415
Method SM 4500-P E			
Analyte	**AB**	**Analyte ID**	**Method ID**
Orthophosphate as P	TX	1870	20124225
Phosphorus	TX	1910	20124225
Method SM 4500-S2¯ D			
Analyte	**AB**	**Analyte ID**	**Method ID**
Sulfide	TX	2005	20125864
Method SM 5220 D			
Analyte	**AB**	**Analyte ID**	**Method ID**
Chemical oxygen demand (COD)	TX	1565	20136816
Method SM 5310 C			
Analyte	**AB**	**Analyte ID**	**Method ID**
Total Organic Carbon (TOC)	TX	2040	20138823
Method TCEQ 1005			
Analyte	**AB**	**Analyte ID**	**Method ID**
Total Petroleum Hydrocarbons (TPH)	TX	2050	90019208

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Method	Analyte	AB	Analyte ID	Method ID
ASTM D2216	Moisture	TX	10337	ASTM D2216-05
EPA 1010	Ignitability	TX	1780	10116606
EPA 1311	TCLP	TX	849	10118806
EPA 1312	SPLP	TX	850	10119003
EPA 200.8	Aluminum	TX	1000	10014605
	Antimony	TX	1005	10014605
	Arsenic	TX	1010	10014605
	Barium	TX	1015	10014605
	Beryllium	TX	1020	10014605
	Cadmium	TX	1030	10014605
	Calcium	TX	1035	10014605
	Chromium	TX	1040	10014605
	Cobalt	TX	1050	10014605
	Copper	TX	1055	10014605
	Iron	TX	1070	10014605
	Lead	TX	1075	10014605
	Magnesium	TX	1085	10014605
	Manganese	TX	1090	10014605
	Molybdenum	TX	1100	10014605
	Nickel	TX	1105	10014605
	Potassium	TX	1125	10014605

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate:	T104704211-14-12
Expiration Date:	4/30/2015
Issue Date:	5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Selenium	TX	1140	10014605
Silver	TX	1150	10014605
Sodium	TX	1155	10014605
Strontium	TX	1160	10014605
Thallium	TX	1165	10014605
Tin	TX	1175	10014605
Titanium	TX	1180	10014605
Vanadium	TX	1185	10014605
Zinc	TX	1190	10014605

Method EPA 300.0

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10053006
Chloride	TX	1575	10053006
Fluoride	TX	1730	10053006
Nitrate as N	TX	1810	10053006
Nitrate-nitrite	TX	1820	10053006
Nitrite as N	TX	1840	10053006
Sulfate	TX	2000	10053006

Method EPA 310.1

Analyte	**AB**	**Analyte ID**	**Method ID**
Alkalinity as CaCO3	TX	1505	10054805

Method EPA 350.3

Analyte	**AB**	**Analyte ID**	**Method ID**
Ammonia as N	TX	1515	10064401

Method EPA 365.2

Analyte	**AB**	**Analyte ID**	**Method ID**
Orthophosphate as P	TX	1870	10070403
Phosphorus	TX	1910	10070403

Method EPA 6020

Analyte	**AB**	**Analyte ID**	**Method ID**
Aluminum	TX	1000	10156204

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Antimony	TX	1005	10156204
Arsenic	TX	1010	10156204
Barium	TX	1015	10156204
Beryllium	TX	1020	10156204
Boron	TX	1025	10156204
Cadmium	TX	1030	10156204
Calcium	TX	1035	10156204
Chromium	TX	1040	10156204
Cobalt	TX	1050	10156204
Copper	TX	1055	10156204
Iron	TX	1070	10156204
Lead	TX	1075	10156204
Lithium	TX	1080	10156204
Magnesium	TX	1085	10156204
Manganese	TX	1090	10156204
Molybdenum	TX	1100	10156204
Nickel	TX	1105	10156204
Potassium	TX	1125	10156204
Selenium	TX	1140	10156204
Silver	TX	1150	10156204
Sodium	TX	1155	10156204
Strontium	TX	1160	10156204
Thallium	TX	1165	10156204
Tin	TX	1175	10156204
Titanium	TX	1180	10156204
Vanadium	TX	1185	10156204
Zinc	TX	1190	10156204

Method EPA 7196

Analyte	**AB**	**Analyte ID**	**Method ID**
Chromium (VI)	TX	1045	10162400

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Method EPA 7470

Analyte	AB	Analyte ID	Method ID
Mercury	TX	1095	10165807

Method EPA 7471

Analyte	AB	Analyte ID	Method ID
Mercury	TX	1095	10166208

Method EPA 8015

Analyte	AB	Analyte ID	Method ID
Diesel range organics (DRO)	TX	9369	10173203
Ethylene glycol	TX	4785	10173203
Gasoline range organics (GRO)	TX	9408	10173203
Propylene Glycol	TX	6657	10173203

Method EPA 8021

Analyte	AB	Analyte ID	Method ID
Benzene	TX	4375	10174808
Ethylbenzene	TX	4765	10174808
m+p-xylene	TX	5240	10174808
Methyl tert-butyl ether (MTBE)	TX	5000	10174808
o-Xylene	TX	5250	10174808
Toluene	TX	5140	10174808
Xylene (total)	TX	5260	10174808

Method EPA 8082

Analyte	AB	Analyte ID	Method ID
Aroclor-1016 (PCB-1016)	TX	8880	10179007
Aroclor-1221 (PCB-1221)	TX	8885	10179007
Aroclor-1232 (PCB-1232)	TX	8890	10179007
Aroclor-1242 (PCB-1242)	TX	8895	10179007
Aroclor-1248 (PCB-1248)	TX	8900	10179007
Aroclor-1254 (PCB-1254)	TX	8905	10179007
Aroclor-1260 (PCB-1260)	TX	8910	10179007
PCBs (total)	TX	8870	10179007

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Method EPA 8260

Analyte	AB	Analyte ID	Method ID
1,1,1,2-Tetrachloroethane	TX	5105	10184802
1,1,1-Trichloroethane	TX	5160	10184802
1,1,2,2-Tetrachloroethane	TX	5110	10184802
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TX	5195	10184802
1,1,2-Trichloroethane	TX	5165	10184802
1,1-Dichloroethane	TX	4630	10184802
1,1-Dichloroethylene	TX	4640	10184802
1,1-Dichloropropene	TX	4670	10184802
1,2,3-Trichlorobenzene	TX	5150	10184802
1,2,3-Trichloropropane	TX	5180	10184802
1,2,4-Trichlorobenzene	TX	5155	10184802
1,2,4-Trimethylbenzene	TX	5210	10184802
1,2-Dibromo-3-chloropropane (DBCP)	TX	4570	10184802
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10184802
1,2-Dichlorobenzene	TX	4610	10184802
1,2-Dichloroethane (Ethylene dichloride)	TX	4635	10184802
1,2-Dichloropropane	TX	4655	10184802
1,3,5-Trimethylbenzene	TX	5215	10184802
1,3-Dichlorobenzene	TX	4615	10184802
1,3-Dichloropropane	TX	4660	10184802
1,4-Dichlorobenzene	TX	4620	10184802
1-Chlorohexane	TX	4510	10184802
2,2-Dichloropropane	TX	4665	10184802
2-Butanone (Methyl ethyl ketone, MEK)	TX	4410	10184802
2-Chloroethyl vinyl ether	TX	4500	10184802
2-Chlorotoluene	TX	4535	10184802
2-Hexanone (MBK)	TX	4860	10184802
4-Chlorotoluene	TX	4540	10184802

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Solid & Chemical Materials*

4-Isopropyltoluene (p-Cymene)	TX	4915	10184802
4-Methyl-2-pentanone (MIBK)	TX	4995	10184802
Acetone (2-Propanone)	TX	4315	10184802
Acrolein (Propenal)	TX	4325	10184802
Acrylonitrile	TX	4340	10184802
Benzene	TX	4375	10184802
Bromobenzene	TX	4385	10184802
Bromochloromethane	TX	4390	10184802
Bromodichloromethane	TX	4395	10184802
Bromoform	TX	4400	10184802
Carbon disulfide	TX	4450	10184802
Carbon tetrachloride	TX	4455	10184802
Chlorobenzene	TX	4475	10184802
Chlorodibromomethane	TX	4575	10184802
Chloroethane (Ethyl chloride)	TX	4485	10184802
Chloroform	TX	4505	10184802
cis-1,2-Dichloroethylene	TX	4645	10184802
cis-1,3-Dichloropropene	TX	4680	10184802
Dibromomethane (Methylene bromide)	TX	4595	10184802
Dichlorodifluoromethane (Freon-12)	TX	4625	10184802
Ethylbenzene	TX	4765	10184802
Hexachlorobutadiene	TX	4835	10184802
Iodomethane (Methyl iodide)	TX	4870	10184802
Isopropyl alcohol (2-Propanol, Isopropanol)	TX	4895	10184802
Isopropylbenzene (Cumene)	TX	4900	10184802
m+p-xylene	TX	5240	10184802
Methyl acetate	TX	4940	10184802
Methyl bromide (Bromomethane)	TX	4950	10184802
Methyl chloride (Chloromethane)	TX	4960	10184802
Methyl tert-butyl ether (MTBE)	TX	5000	10184802

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Methylcyclohexane	TX	4965	10184802
Methylene chloride (Dichloromethane)	TX	4975	10184802
Naphthalene	TX	5005	10184802
n-Butylbenzene	TX	4435	10184802
n-Propylbenzene	TX	5090	10184802
o-Xylene	TX	5250	10184802
sec-Butylbenzene	TX	4440	10184802
Styrene	TX	5100	10184802
tert-Butylbenzene	TX	4445	10184802
Tetrachloroethylene (Perchloroethylene)	TX	5115	10184802
Toluene	TX	5140	10184802
trans-1,2-Dichloroethylene	TX	4700	10184802
trans-1,3-Dichloropropylene	TX	4685	10184802
trans-1,4-Dichloro-2-butene	TX	4605	10184802
Trichloroethene (Trichloroethylene)	TX	5170	10184802
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	TX	5175	10184802
Vinyl acetate	TX	5225	10184802
Vinyl chloride	TX	5235	10184802
Xylene (total)	TX	5260	10184802

Method EPA 8270

Analyte	**AB**	**Analyte ID**	**Method ID**
1,2,4,5-Tetrachlorobenzene	TX	6715	10185805
1,2,4-Trichlorobenzene	TX	5155	10185805
1,2-Dichlorobenzene	TX	4610	10185805
1,2-Diphenylhydrazine	TX	6220	10185805
1,3-Dichlorobenzene	TX	4615	10185805
1,4-Dichlorobenzene	TX	4620	10185805
1-Naphthylamine	TX	6425	10185805
2,3,4,6-Tetrachlorophenol	TX	6735	10185805
2,4,5-Trichlorophenol	TX	6835	10185805

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: *Solid & Chemical Materials*

2,4,6-Trichlorophenol	TX	6840	10185805
2,4-Dichlorophenol	TX	6000	10185805
2,4-Dimethylphenol	TX	6130	10185805
2,4-Dinitrophenol	TX	6175	10185805
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10185805
2,6-Dichlorophenol	TX	6005	10185805
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10185805
2-Chloronaphthalene	TX	5795	10185805
2-Chlorophenol	TX	5800	10185805
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	TX	6360	10185805
2-Methylnaphthalene	TX	6385	10185805
2-Methylphenol (o-Cresol)	TX	6400	10185805
2-Naphthylamine	TX	6430	10185805
2-Nitroaniline	TX	6460	10185805
2-Nitrophenol	TX	6490	10185805
2-Picoline (2-Methylpyridine)	TX	5050	10185805
3,3'-Dichlorobenzidine	TX	5945	10185805
3-Methylcholanthrene	TX	6355	10185805
3-Nitroaniline	TX	6465	10185805
4,4'-DDD	TX	7355	10185203
4,4'-DDE	TX	7360	10186002
4,4'-DDT	TX	7365	10185407
4-Aminobiphenyl	TX	5540	10185805
4-Bromophenyl phenyl ether (BDE-3)	TX	5660	10185805
4-Chloro-3-methylphenol	TX	5700	10185805
4-Chloroaniline	TX	5745	10185805
4-Chlorophenyl phenylether	TX	5825	10185805
4-Dimethyl aminoazobenzene	TX	6105	10185805
4-Methylphenol (p-Cresol)	TX	6410	10185805
4-Nitroaniline	TX	6470	10185805

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

4-Nitrophenol	TX	6500	10185805
7,12-Dimethylbenz(a) anthracene	TX	6115	10185805
a-a-Dimethylphenethylamine	TX	6125	10185805
Acenaphthene	TX	5500	10185805
Acenaphthylene	TX	5505	10185805
Acetophenone	TX	5510	10185805
Aldrin	TX	7025	10186002
alpha-BHC (alpha-Hexachlorocyclohexane)	TX	7110	10185407
alpha-Chlordane	TX	7240	10185805
Aniline	TX	5545	10185805
Anthracene	TX	5555	10185805
Aroclor-1016 (PCB-1016)	TX	8880	10186002
Aroclor-1221 (PCB-1221)	TX	8885	10185805
Aroclor-1232 (PCB-1232)	TX	8890	10185407
Aroclor-1242 (PCB-1242)	TX	8895	10185407
Aroclor-1248 (PCB-1248)	TX	8900	10185805
Aroclor-1254 (PCB-1254)	TX	8905	10185805
Aroclor-1260 (PCB-1260)	TX	8910	10185407
Atrazine	TX	7065	10185805
Azinphos-methyl (Guthion)	TX	7075	10185203
Benzidine	TX	5595	10185805
Benzo(a)anthracene	TX	5575	10185805
Benzo(a)pyrene	TX	5580	10185805
Benzo(b)fluoranthene	TX	5585	10185805
Benzo(e)pyrene	TX	5605	10185805
Benzo(g,h,i)perylene	TX	5590	10185805
Benzo(k)fluoranthene	TX	5600	10185805
Benzoic acid	TX	5610	10185805
Benzyl alcohol	TX	5630	10185805
beta-BHC (beta-Hexachlorocyclohexane)	TX	7115	10185601

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Biphenyl	TX	5640	10185805
bis(2-Chloroethoxy)methane	TX	5760	10185805
bis(2-Chloroethyl) ether	TX	5765	10185805
bis(2-Chloroisopropyl) ether	TX	5780	10185805
bis(2-Ethylhexyl) phthalate (DEHP)	TX	6255	10185805
Butyl benzyl phthalate	TX	5670	10185805
Caprolactam	TX	7180	10185805
Carbaryl (Sevin)	TX	7195	10185601
Carbazole	TX	5680	10185805
Carbophenothion	TX	7220	10185805
Chlordane (tech.)	TX	7250	10185805
Chlorfenvinphos	TX	7255	10185203
Chrysene	TX	5855	10185805
Coumaphos	TX	7315	10185805
Crotoxyphos	TX	7330	10185203
delta-BHC (delta-Hexachlorocyclohexane)	TX	7105	10186002
Demeton	TX	7390	10185805
Demeton-o	TX	7395	10185805
Demeton-s	TX	7385	10185601
Dibenz(a,h) anthracene	TX	5895	10185805
Dibenzofuran	TX	5905	10185805
Dichlorovos (DDVP, Dichlorvos)	TX	8610	10185805
Dicrotophos	TX	7465	10185805
Dieldrin	TX	7470	10185407
Diethyl phthalate	TX	6070	10185805
Dimethoate	TX	7475	10185805
Dimethyl phthalate	TX	6135	10185805
Di-n-butyl phthalate	TX	5925	10185805
Di-n-octyl phthalate	TX	6200	10185805
Dioxathion	TX	7495	10185601

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12

DHL Analytical, Inc.

Expiration Date: 4/30/2015

2300 Double Creek Drive
Round Rock, TX 78664-3801

Issue Date: 5/1/2014

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Diphenylamine	TX	6205	10185805
Disulfoton	TX	8625	10185407
Endosulfan I	TX	7510	10185601
Endosulfan II	TX	7515	10185805
Endosulfan sulfate	TX	7520	10186002
Endrin	TX	7540	10185601
Endrin aldehyde	TX	7530	10186002
Endrin ketone	TX	7535	10186002
EPN (Phosphonothioic acid, phenyl-, O-ethyl O-(p-nitrophenyl) ester)	TX	7550	10186002
Ethion	TX	7565	10185203
Ethyl methanesulfonate	TX	6260	10185805
Famphur	TX	7580	10186002
Fensulfothion	TX	7600	10185805
Fenthion	TX	7605	10186002
Fluoranthene	TX	6265	10185805
Fluorene	TX	6270	10185805
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	TX	7120	10185407
gamma-Chlordane	TX	7245	10185601
Heptachlor	TX	7685	10185601
Heptachlor epoxide	TX	7690	10185203
Hexachlorobenzene	TX	6275	10185805
Hexachlorobutadiene	TX	4835	10185805
Hexachlorocyclopentadiene	TX	6285	10185805
Hexachloroethane	TX	4840	10185805
Hexachlorophene	TX	6290	10185601
Indeno(1,2,3-cd) pyrene	TX	6315	10185805
Isodrin	TX	7725	10185203
Isophorone	TX	6320	10185805
Leptophos	TX	7755	10185407
Malathion	TX	7770	10185601

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Methoxychlor	TX	7810	10185203
Methyl methanesulfonate	TX	6375	10185805
Methyl parathion (Parathion, methyl)	TX	7825	10185203
Mevinphos	TX	7850	10185805
Monocrotophos	TX	7880	10185805
Naled	TX	7905	10185805
Naphthalene	TX	5005	10185805
Nitrobenzene	TX	5015	10185805
n-Nitrosodiethylamine	TX	6525	10185805
n-Nitrosodimethylamine	TX	6530	10185805
n-Nitrosodi-n-butylamine	TX	5025	10185805
n-Nitrosodi-n-propylamine	TX	6545	10185805
n-Nitrosodiphenylamine	TX	6535	10185805
n-Nitrosopiperidine	TX	6560	10185805
Parathion, ethyl	TX	7955	10185805
Pentachlorobenzene	TX	6590	10185805
Pentachloronitrobenzene (PCNB)	TX	6600	10185805
Pentachlorophenol	TX	6605	10185805
Phenacetin	TX	6610	10185805
Phenanthrene	TX	6615	10185805
Phenol	TX	6625	10185805
Phorate	TX	7985	10185407
Phosmet (Imidan)	TX	8000	10185203
Phosphamidon	TX	8005	10186002
Pronamide (Kerb)	TX	6650	10185805
Pyrene	TX	6665	10185805
Pyridine	TX	5095	10185805
Quinoline	TX	6670	10185805
Sulfotepp	TX	8155	10185203
Terbufos	TX	8185	10185805

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Tetrachlorvinphos (Stirophos, Gardona)	TX	8197	10186002
Tetraethyl pyrophosphate (TEPP)	TX	8210	10185407
Toxaphene (Chlorinated camphene)	TX	8250	10185203

Method EPA 8321

Analyte	**AB**	**Analyte ID**	**Method ID**
2,4,5-T	TX	8655	10188804
2,4-D	TX	8545	10188804
2,4-DB	TX	8560	10188804
Dalapon	TX	8555	10188804
Dicamba	TX	8595	10188804
Dichloroprop (Dichlorprop, Weedone)	TX	8605	10188804
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	TX	8620	10188804
MCPA	TX	7775	10188804
MCPP	TX	7780	10188804
Silvex (2,4,5-TP)	TX	8650	10188804

Method EPA 8330

Analyte	**AB**	**Analyte ID**	**Method ID**
1,3,5-Trinitrobenzene (1,3,5-TNB)	TX	6885	10189807
1,3-Dinitrobenzene (1,3-DNB)	TX	6160	10189807
2,4,6-Trinitrotoluene (2,4,6-TNT)	TX	9651	10189807
2,4-Dinitrotoluene (2,4-DNT)	TX	6185	10189807
2,6-Dinitrotoluene (2,6-DNT)	TX	6190	10189807
2-Amino-4,6-dinitrotoluene (2-am-dnt)	TX	9303	10189807
2-Nitrotoluene	TX	9507	10189807
3-Nitrotoluene	TX	9510	10189807
4-Amino-2,6-dinitrotoluene (4-am-dnt)	TX	9306	10189807
4-Nitrotoluene	TX	9513	10189807
Methyl-2,4,6-trinitrophenylnitramine (tetryl)	TX	6415	10189807
Nitrobenzene	TX	5015	10189807
Nitroglycerin	TX	6485	10189807
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	TX	9522	10189807

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12
Expiration Date: 4/30/2015
Issue Date: 5/1/2014

DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Pentaerythritoltetranitrate (PETN)	TX	9558	10189807
RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine)	TX	9432	10189807

Method EPA 9014

Analyte	**AB**	**Analyte ID**	**Method ID**
Amenable cyanide	TX	1510	10193803
Total Cyanide	TX	1635	10193803

Method EPA 9040

Analyte	**AB**	**Analyte ID**	**Method ID**
Corrosivity	TX	1615	10197203
pH	TX	1900	10197203

Method EPA 9045

Analyte	**AB**	**Analyte ID**	**Method ID**
pH	TX	1900	10198400

Method EPA 9056

Analyte	**AB**	**Analyte ID**	**Method ID**
Bromide	TX	1540	10199209
Chloride	TX	1575	10199209
Fluoride	TX	1730	10199209
Nitrate as N	TX	1810	10199209
Nitrate-nitrite	TX	1820	10199209
Nitrite as N	TX	1840	10199209
Sulfate	TX	2000	10199209

Method SM 2320 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Alkalinity as CaCO3	TX	1505	20045618

Method SM 2510 B

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	TX	1610	20048617

Method SSA/ASA Part 3:14

Analyte	**AB**	**Analyte ID**	**Method ID**
Conductivity	TX	1610	60049505

Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation

Certificate: T104704211-14-12

DHL Analytical, Inc.

Expiration Date: 4/30/2015

2300 Double Creek Drive
Round Rock, TX 78664-3801

Issue Date: 5/1/2014

These fields of accreditation supercede all previous fields. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current accreditation status for particular methods and analyses.

Matrix: ***Solid & Chemical Materials***

Method TCEQ 1005

Analyte	AB	Analyte ID	Method ID
Total Petroleum Hydrocarbons (TPH)	TX	2050	90019208

ECS Environmental Chemistry Services

PO Box 79782 Houston, TX 77279♦Voice/Fax:(713) 935-0222♦ecschem@sbcglobal.net

To: William Gamblin, Daniel B. Stephens & Associates, Inc.

From: Nan Toole, ECS Environmental Chemistry Services

Date: 2/10/2014

Re: Data Validation Memorandum, Rockwool Industries, Inc. Federal Superfund Site, Groundwater Sampling Event, January 2014

This Data Validation memorandum contains the results of the data validation conducted for samples collected January 2014 from Rockwool Industries, Inc. Federal Superfund Site. ECS Environmental Chemistry Services (ECS) validated one batch analyzed for metals by DHL Analytical in Round Rock, Texas. The following data are covered by this report:

SDG	LAB SAMPLE ID	FIELD SAMPLE ID	DATE COLL.	MEDIA	PARAMETER
1401180	1401180-01	MW-22	01/21/14	Aqueous	MET
	1401180-02	MW-20	01/21/14	Aqueous	MET
	1401180-03	MW-37-90	01/21/14	Aqueous	MET
	1401180-04	MW-21	01/21/14	Aqueous	MET
	1401180-05	MW-38-90	01/21/14	Aqueous	MET
	1401180-06	MW-35-90	01/21/14	Aqueous	MET
	1401180-07	DUP-1	01/21/14	Aqueous	MET
	1401180-08	ER-1	01/21/14	Aqueous	MET
	1401180-09	MW-11	01/22/14	Aqueous	MET
	1401180-10	MW-14	01/22/14	Aqueous	MET
	1401180-11	MW-10	01/22/14	Aqueous	MET
	1401180-12	MW-7	01/22/14	Aqueous	MET
	1401180-13	MW-19	01/22/14	Aqueous	MET
	1401180-14	MW-30-90	01/22/14	Aqueous	MET
	1401180-15	MW-24-90	01/22/14	Aqueous	MET
	1401180-16	MW-18	01/22/14	Aqueous	MET
	1401180-17	MW-29-90	01/22/14	Aqueous	MET
	1401180-18	ER-2	01/22/14	Aqueous	MET
	1401180-19	MW-27-90	01/23/14	Aqueous	MET
	1401180-20	MW-17	01/23/14	Aqueous	MET
	1401180-21	MW-28-90	01/23/14	Aqueous	MET
	1401180-22	MW-33-90	01/23/14	Aqueous	MET
	1401180-23	MW-34-90	01/23/14	Aqueous	MET
	1401180-24	MW-9	01/23/14	Aqueous	MET
	1401180-25	ER-3	01/23/14	Aqueous	MET
	1401180-26	DUP-2	01/23/14	Aqueous	MET

MET=ICP/MS Metals (antimony, arsenic, lead) by EPA Method 6020A

Analytical data were evaluated for conformance to the requirements of the laboratory Standard Operating Procedures (SOP) for the methods referenced above and the Texas Commission on Environmental Quality (TCEQ) Quality Assurance Project Plan (QAPP) for the Federal Superfund Program (Revision 10.0, QTRAK#13-462). The data validation resulted in no significant quality control anomalies, rejected data nor any corrective actions taken or recommended for future analyses.

ECS Environmental Chemistry Services

PO Box 79782 Houston, TX 77279♦Voice/Fax:(713) 935-0222♦ecschem@sbcglobal.net

Data Validation Results

The laboratory used for this project appears to have adequate quality assurance systems in place that are designed to ensure the accurate reporting of analytical results generated by the laboratory and to identify and correct problems associated with the generation of analytical data. No transcription or calculation errors were found. All instances in which the analytical quality control results fell outside the acceptance criteria were fully and correctly reported in the Laboratory Review Checklist (LRC).

The following batch was validated:

- Metal batch 61543

ICP/MS METALS

For metals data, the following items are reviewed in this section

- Initial Calibration
- Initial and Continuing Calibration Verification
- Interference Check Solution
- Serial dilution, Post Digestion Spike, Method of Standard Additions

Initial Calibration

Initial Calibrations were performed at the proper frequency and met the criteria specified in Table B.5.1.16-3 of the TCEQ Superfund Program QAPP. None of the metals data were qualified based on initial calibration data.

Initial and Continuing Calibration Verification

Initial and Continuing Calibration Verifications were performed at the proper frequency and met the criteria specified in Table B.5.1.16-3 of the TCEQ Superfund Program QAPP. None of the metals data were qualified based on continuing calibration data.

Interference Check Solution (ICS)

All of the ICS were performed at the proper frequency and met the criteria specified in Table B.5.1.16-3 of the TCEQ Superfund Program QAPP. None of the metals data were qualified based on ICS data.

Serial Dilution, Post Digestion Spike, Method of Standard Additions

The serial dilution, post digestion spike, and Method of Standard Additions (MSA) were performed, if needed, at the proper frequency and met the requirements set forth in Elements D.2.1.2.1.6, D.2.1.2.1.7, and D.2.1.2.1.8 of the TCEQ Superfund Program QAPP. None of the metals data were qualified based on these criteria.

ECS Environmental Chemistry Services

PO Box 79782 Houston, TX 77279♦Voice/Fax:(713) 935-0222♦ecschem@sbcglobal.net

To: William Gamblin, Project Manager, Daniel B. Stephens & Associates, Inc.

From: Nan Toole, ECS Environmental Chemistry Services

Date: 2/10/2014

Re: Data Review Memorandum, Rockwool Industries, Inc. Federal Superfund Site, Groundwater Sampling Event, January 2014

This Data Review Memorandum summarizes the results of the data review conducted for samples collected during January 2014 from the Rockwool Industries, Inc. Federal Superfund Site. ECS Environmental Chemistry Services (ECS) reviewed chemical data analyzed by DHL Analytical in Round Rock, Texas. The following data are covered by this memo:

DATA PACKAGE	LAB SAMPLE ID	FIELD SAMPLE ID	DATE COLL.	MEDIA	PARAMETER
1401180	1401180-01	MW-22	01/21/14	Aqueous	MET
	1401180-02	MW-20	01/21/14	Aqueous	MET
	1401180-03	MW-37-90	01/21/14	Aqueous	MET
	1401180-04	MW-21	01/21/14	Aqueous	MET
	1401180-05	MW-38-90	01/21/14	Aqueous	MET
	1401180-06	MW-35-90	01/21/14	Aqueous	MET
	1401180-07	DUP-1	01/21/14	Aqueous	MET
	1401180-08	ER-1	01/21/14	Aqueous	MET
	1401180-09	MW-11	01/22/14	Aqueous	MET
	1401180-10	MW-14	01/22/14	Aqueous	MET
	1401180-11	MW-10	01/22/14	Aqueous	MET
	1401180-12	MW-7	01/22/14	Aqueous	MET
	1401180-13	MW-19	01/22/14	Aqueous	MET
	1401180-14	MW-30-90	01/22/14	Aqueous	MET
	1401180-15	MW-24-90	01/22/14	Aqueous	MET
	1401180-16	MW-18	01/22/14	Aqueous	MET
	1401180-17	MW-29-90	01/22/14	Aqueous	MET
	1401180-18	ER-2	01/22/14	Aqueous	MET
	1401180-19	MW-27-90	01/23/14	Aqueous	MET
	1401180-20	MW-17	01/23/14	Aqueous	MET
	1401180-21	MW-28-90	01/23/14	Aqueous	MET
	1401180-22	MW-33-90	01/23/14	Aqueous	MET
	1401180-23	MW-34-90	01/23/14	Aqueous	MET
	1401180-24	MW-9	01/23/14	Aqueous	MET
	1401180-25	ER-3	01/23/14	Aqueous	MET
	1401180-26	DUP-2	01/23/14	Aqueous	MET

MET=ICP/MS metals (antimony, arsenic, lead) by EPA Method 6020A

Analytical data were evaluated for conformance to the requirements of Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW-846) and the TCEQ Quality Assurance Project Plan (QAPP) for the Federal Superfund Program (Revision 10.0, QTRAK#13-462).

The purpose of this sampling event was to compare assess groundwater constituent concentrations.

ECS Environmental Chemistry Services

PO Box 79782 Houston, TX 77279♦Voice/Fax:(713) 935-0222♦ecschem@sbcglobal.net

The technical data review resulted in no significant quality control anomalies, no rejected data and no corrective actions taken or recommended for future analyses.

The Data Review Results are provided in the following attachment.

ECS Environmental Chemistry Services

PO Box 79782 Houston, TX 77279♦Voice/Fax:(713) 935-0222♦ecschem@sbcglobal.net

Data Review Results Attachment

ECS Environmental Chemistry Services

PO Box 79782 Houston, TX 77279♦Voice/Fax:(713) 935-0222♦ecschem@sbcglobal.net

Data Review Results

Items identified in the Laboratory Review Checklist (LRC) as outside of control limits for laboratory performance criteria were evaluated for the data packages covered by this report. The evaluation of the sample specific items is covered below. All samples were received in good condition. A copy of the original Chain-of-Custody (C-O-C) and airbill receipt were present in the data packages. The data package included all requested analyses on the C-O-C. The following table summarizes the data review qualifiers that were applied to the data.

METALS

For metals data, the following items are reviewed in this section:

- Holding Time/Preservation Requirements
- Blanks
- Laboratory Control Samples
- Matrix Spikes
- Matrix Spike Duplicates
- Field Duplicates

Holding Time/Preservation Requirements

The maximum holding time from date of collection to date of preparation for metals in aqueous matrix samples is 180 days. The maximum holding time from date of preparation to date of analysis for metals in aqueous matrix samples is 180 days. These holding times were met for all of the samples in this data set. None of the metals data were qualified based on holding times.

Blanks

All associated blanks were free of any reportable concentration for all reported analytes above SDLs. None of the metal data were qualified based on blanks.

Laboratory Control Samples (LCS)

The LCS review criteria for metals data are as follows:

ACCURACY (%R)	PRECISION (RELATIVE PERCENT DIFFERENCE)
70%-130%	30%

One LCS was analyzed with each analytical batch. These criteria were met for all the samples in this data set. None of the metals data were qualified based on LCS data.

ECS Environmental Chemistry Services

PO Box 79782 Houston, TX 77279♦Voice/Fax:(713) 935-0222♦ecschem@sbcglobal.net

Matrix Spikes

The matrix spike review criteria for metals data are as follows:

ACCURACY (%R)
70%-130%

One MS was analyzed with every analytical batch. These criteria were met for all the samples in this data set.

Matrix Spike Duplicates

The matrix spike duplicate review criteria for metals data are as follows:

PRECISION (RELATIVE PERCENT DIFFERENCE)	DIFFERENCE
30%	+ OR- SDL*

One duplicate was analyzed with every analytical batch. These criteria were met for all the samples in this data set. None of the metals data were qualified based on duplicate data.

Field Duplicates

For aqueous matrix samples, when both the original and duplicate result are greater than 5 times the MQL, the RPD was equal to or less than 30%. For aqueous matrix samples, when one or both of the original and duplicate results are less than 5 times the MQL, the results agree within 2 times the greater SDL. The results of this evaluation of all detected results are shown in the following table:

SDG	FIELD DUP ID	ANALYTE	ORIGINAL RESULT	DUPLICATE RESULT	QC RESULT	CRITERIA
1401180	1401180-06/07	Antimony	0.604	0.594	RPD:2%	<=30%
		Arsenic	0.0803	0.0809	RPD:1%	<=30%
		Lead	0.000511	0.000764	DIF:0.000253	<=0.0003
	1401180-23/26	Antimony	0.306	0.300	RPD:2%	<=30%
		Arsenic	0.415	0.410	RPD:1%	<=30%

All of the results met data review criteria.

February 04, 2014

Paul Kirby
D. B. Stephens & Assoc, Inc.
4030 W Braker #325
Austin, Texas 78759
TEL: (512) 821-2765
FAX

Order No.: 1401180

RE: Rockwool TCEQ Belton, TX

Dear Paul Kirby:

DHL Analytical, Inc. received 26 sample(s) on 1/24/2014 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-13-11

Table of Contents

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 62151

CHAIN-OF-CUSTODY

CLIENT: DBSA
ADDRESS: 4030 West Braker Lane Ste. 325, Austin, TX
PHONE: 512-821-2765 FAX/E-MAIL: BC wgamblin@dbstephens.com
DATA REPORTED TO: William Gamblin
ADDITIONAL REPORT COPIES TO: —

DATE: 1/23/14 BC 1/21/14 to 1/23/14 PAGE BC 1 OF 2
PO #: — — DHL WORK ORDER #: 019458 1401180
PROJECT LOCATION OR NAME: Rockwool - TCEQ Belton, TX
CLENT PROJECT #: ES14.AIRO.12.00002 COLLECTOR: B. CAMACHO

Authorize 5% surcharge for TRRP Report? ☐ Yes ☒ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
MW-22	01	1-21-14	1345	W	P, 250mL	1		X		X		X	TCEQ list
MW-20	02	1-21-14	1440	W	P, 250mL	1		X		X		X	
MW-37-90	03	1-21-14	1530	W	P, 250mL	1		X		X		X	
MW-21	04	1-21-14	1640	W	P, 250mL	1		X		X		X	
MW-38-90	05	1-21-14	1740	W	P, 250mL	1		X		X		X	
MW-35-90	06	1-21-14	1840	W	P, 250mL	1		X		X		X	
MW-21 MS	04	1-21-14	1640	W	P, 250mL	1		X		X		X	
MW-21 MSD	04	1-21-14	1640	W	P, 250mL	1		X		X		X	
Dup-1	07	1-21-14	—	W	P, 250mL	1		X		X		X	
ER-1	08	1-21-14	1900	W	P, 250mL	1		X		X		X	
MW-11	09	1-22-14	0950	W	P, 250mL	1		X		X		X	
MW-14	10	1-22-14	1125	W	P, 250mL	1		X		X		X	
MW-10	11	1-22-14	1210	W	P, 250mL	1		X		X		X	
MW-7	12	1-22-14	1340	W	P, 250mL	1		X		X		X	
MW-19	13	1-22-14	1440	W	P, 250mL	1		X		X		X	
TOTAL						15							

ANALYSES: BTEX ☐ MTBE ☐ [METHOD 8021] / TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ / GRO [METHOD 8015] ☐ DRO [METHOD 8105] ☐ / VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ / SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ / 8081 PEST ☐ 608 PEST/PCB ☐ 8082 PCB ☐ 8270 PEST ☐ / 8270 O-P PEST ☐ 8082 PEST/PCB ☐ 8270 PCB ☐ / 8321 HERB ☐ 8330 EXPL ☐ PERCHLORATE ☐ / METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ / RCRA ☐ TX11 ☐ _____ ☐ / PH ☐ HEX CHROM ☐ ALKALINITY ☐ / CHLORIDE ☐ ANIONS _____ ☐ / TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ / TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ / RCI ☐ TOX ☐ FLASHPOINT ☐ / TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

RELINQUISHED BY: (Signature) CAMACHO, BEN DATE/TIME 1/23/14 BC RECEIVED BY: (Signature) 1/24/14 1100 AM
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

3

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 1.0 THERM #: 74
CUSTODY SEALS: ☐ BROKEN ☐ INTACT ☒ NOT USED
☐ CARRIER BILL #: _____
☐ APC DELIVERY
☐ HAND DELIVERED

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 62152

CHAIN-OF-CUSTODY

CLIENT: DBSA
ADDRESS: 4030 West Braker Lane Ste 325, Austin TX
PHONE: 512-821-2765 FAX/E-MAIL: Wgambling@dbstephens.com
DATA REPORTED TO: William GAMBLIN
ADDITIONAL REPORT COPIES TO: —

DATE: ~~1-23-14 Bc~~ 1/21/14 to 1/23/14 PAGE 2 OF 2
PO #: — — DHL WORK ORDER #: 019458 1401190
PROJECT LOCATION OR NAME: Rockwool TCEQ Belton, TX
CLENT PROJECT #: ES14.A1A0.12 COLLECTOR: B. CAMACHO

Authorize 5% surcharge for TRRP Report? ☐ Yes ☒ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
MW-30-90	14	1-22-14	1550	W	P, 250mL	1		X		X		X	TCEQ List
MW-24-90	15	1-22-14	1640	W	P, 250mL	1		X		X		X	
MW-18	16	1-22-14	1740	W	P, 250mL	1		X		X		X	
MW-29-90	17	1-22-14	1840	W	P, 250mL	1		X		X		X	
ER-2	18	1-22-14	1900	W	P, 250mL	1		X		X		X	
MW-27-90	19	1-23-14	0940	W	P, 250mL	1		X		X		X	
MW-17	20	1-23-14	1040	W	P, 250mL	1		X		X		X	
MW-28-90	21	1-23-14	1140	W	P, 250mL	1		X		X		X	
MW-33-90	22	1-23-14	1240	W	P, 250mL	1		X		X		X	
MW-34-90	23	1-23-14	1340	W	P, 250mL	1		X		X		X	
MW-9	24	1-23-14	1440	W	P, 250mL	1		X		X		X	
ER-3	25	1-23-14	1500	W	P, 250mL	1		X		X		X	
Dup-2	26	1-23-14	—	W	P, 250mL	1		X		X		X	↓
			1-23-14										
TOTAL						13							

ANALYSES: BTEX ☐ MTBE ☐ (METHOD 8021) TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ GRO (METHOD 8015) ☐ DRO (METHOD 8105) ☐ VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ 8081 PEST ☐ 608 PEST/PCB ☐ 8270 PEST ☐ 8270 PCB ☐ 8270 O-P PEST ☐ 8082 PCB ☐ 8270 EXPL ☐ PERCHLORATE ☐ 8321 HERB ☐ 8330 EXPL ☐ METALS 200.8 ☐ DISS. METALS ☐ METALS 6020 ☐ TX11 ☐ _____ ☐ RCRA ☐ PH ☐ HEX CHROM ☐ ALKALINITY ☐ CHLORIDE ☐ ANIONS _____ ☐ TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ RCI ☐ TOX ☐ FLASHPOINT ☐ TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

RELINQUISHED BY: (Signature) CAMACHO, BEN DATE/TIME ~~1-23-14 Bc~~ 1/24/14 RECEIVED BY: (Signature) 11 AM
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

4

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 1.5 THERM #: 74
CUSTODY SEALS: ☐ BROKEN ☐ INTACT ☒ NOT USED
☐ CARRIER BILL #: _____
☐ APC DELIVERY
☒ HAND DELIVERED

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name **D. B. Stephens & Assoc, Inc.**

Date Received: **1/24/2014**

Work Order Number **1401180**

Received by **JB**

Checklist completed by: _____ 1/24/2014
Signature | Date

Reviewed by: JD 1/24/2014
Initials | Date

Carrier name Hand Delivered

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☑	No ☐	Not Present ☐
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	**1.0** °C
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 7179
	Adjusted? NO		Checked by _____
Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted? _____		Checked by _____

Any No response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

Page 1 of 1

DHL Analytical, Inc.
Laboratory Review Checklist: Reportable Data

Project Name: Rockwool TCEQ Belton, TX	**Date:** 2/4/2014
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1401180
Prep Batch Number(s): See Prep Dates Report	**Run Batch:** See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-Custody (C-O-C)					
R1	OI	**1)** Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	**X**				**R1-01**
		2) Were all departures from standard conditions described in an exception report?			**X**		
R2	OI	**Sample and Quality Control (QC) Identification**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	**X**				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	**X**				
R3	OI	**Test Reports**					
		1) Were all samples prepared and analyzed within holding times?	**X**				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	**X**				
		3) Were calculations checked by a peer or supervisor?	**X**				
		4) Were all analyte identifications checked by a peer or supervisor?	**X**				
		5) Were sample detection limits reported for all analytes not detected?	**X**				
		6) Were all results for soil and sediment samples reported on a dry weight basis?			**X**		
		7) Were % moisture (or solids) reported for all soil and sediment samples?			**X**		
		8) Were bulk soils/solids samples for volatile analysis extracted with methanol per EPA Method 5035?			**X**		
		9) If required for the project, TICs reported?			**X**		
R4	O	**Surrogate Recovery Data**					
		1) Were surrogates added prior to extraction?			**X**		
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?			**X**		
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		1) Were appropriate type(s) of blanks analyzed?	**X**				
		2) Were blanks analyzed at the appropriate frequency?	**X**				
		3) Where method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	**X**				
		4) Were blank concentrations < MQL?	**X**				
R6	OI	**Laboratory Control Samples (LCS):**					
		1) Were all COCs included in the LCS?	**X**				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	**X**				
		3) Were LCSs analyzed at the required frequency?	**X**				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	**X**				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	**X**				
		6) Was the LCSD RPD within QC limits (if applicable)?	**X**				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Data**					
		1) Were the project/method specified analytes included in the MS and MSD?	**X**				
		2) Were MS/MSD analyzed at the appropriate frequency?	**X**				
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	**X**				
		4) Were MS/MSD RPDs within laboratory QC limits?	**X**				
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?			**X**		
		2) Were analytical duplicates analyzed at the appropriate frequency?			**X**		
		3) Were RPDs or relative standard deviations within the laboratory QC limits?			**X**		
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	**X**				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	**X**				
		3) Are unadjusted MQLs and DCSs included in the laboratory data package?	**X**				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?	**X**				
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	**X**				
		3) Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	**X**				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

DHL Analytical, Inc.
Laboratory Review Checklist (continued): Supporting Data

Project Name: Rockwool TCEQ Belton, TX	**Date:** 2/4/2014
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1401180

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within QC limits?	**X**				
		2) Were percent RSDs or correlation coefficient criteria met?	**X**				
		3) Was the number of standards recommended in the method used for all analytes?	**X**				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	**X**				
		5) Are ICAL data available for all instruments used?	**X**				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	**X**				
S2	OI	**Initial and Continuing calibration Verification (ICCV and CCV) and Continuing Calibration blank (CCB):**					
		1) Was the CCV analyzed at the method-required frequency?	**X**				
		2) Were percent differences for each analyte within the method-required QC limits?	**X**				
		3) Was the ICAL curve verified for each analyte?	**X**				
		4) Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	**X**				
S3	O	**Mass Spectral Tuning:**					
		1) Was the appropriate compound for the method used for tuning?	**X**				
		2) Were ion abundance data within the method-required QC limits?	**X**				
S4	O	**Internal Standards (IS):**					
		1) Were IS area counts and retention times within the method-required QC limits?	**X**				
S5	OI	**Raw Data (NELAC Section 5.5.10)**					
		1) Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	**X**				
		2) Were data associated with manual integrations flagged on the raw data?	**X**				
S6	O	**Dual Column Confirmation**					
		1) Did dual column confirmation results meet the method-required QC?			**X**		
S7	O	**Tentatively Identified Compounds (TICs):**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			**X**		
S8	I	**Interference Check Sample (ICS) Results:**					
		1) Were percent recoveries within method QC limits?	**X**				
S9	I	**Serial Dilutions, Post Digestion Spikes, and Method of Standard Additions**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	**X**				
S10	OI	**Method Detection Limit (MDL) Studies**					
		1) Was a MDL study performed for each reported analyte?	**X**				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	**X**				
S11	OI	**Proficiency Test Reports:**					
		1) Was the lab's performance acceptable on the applicable proficiency tests or evaluation studies?	**X**				
S12	OI	**Standards Documentation**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	**X**				
S13	OI	**Compound/Analyte Identification Procedures**					
		1) Are the procedures for compound/analyte identification documented?	**X**				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5 – Appendix C?	**X**				
		2) Is documentation of the analyst's competency up-to-date and on file?	**X**				
S15	OI	**Verification/Validation Documentation for Methods** (NELAC Chapter 5)					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	**X**				
S16	OI	**Laboratory Standard Operating Procedures (SOPs):**					
		1) Are laboratory SOPs current and on file for each method performed?	**X**				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Data Package Signature Page – RG-366/TRRP-13

This data package consists of:

This signature page, the laboratory review checklist, and the following reportable data:

R1 Field chain-of-custody documentation;
R2 Sample identification cross-reference;
R3 Test reports (analytical data sheets) for each environmental sample that includes:
  a) Items consistent with NELAC Chapter 5,
  b) dilution factors,
  c) preparation methods,
  d) cleanup methods, and
  e) if required for the project, tentatively identified compounds (TICs).
R4 Surrogate recovery data including:
  a) Calculated recovery (%R), and
  b) The laboratory's surrogate QC limits.
R5 Test reports/summary forms for blank samples;
R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  a) LCS spiking amounts,
  b) Calculated %R for each analyte, and
  c) The laboratory's LCS QC limits.
R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  a) Samples associated with the MS/MSD clearly identified,
  b) MS/MSD spiking amounts,
  c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  d) Calculated %Rs and relative percent differences (RPDs), and
  e) The laboratory's MS/MSD QC limits
R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  a) The amount of analyte measured in the duplicate,
  b) The calculated RPD, and
  c) The laboratory's QC limits for analytical duplicates.
R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;
R10 Other problems or anomalies.

The Exception Report for every "No" or "Not Reviewed (NR)" item in Laboratory Review checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information or data affecting the quality of the data has been knowingly withheld.

This laboratory was last inspected by TCEQ on May 6-10, 2013. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

John DuPont – General Manager

Scott Schroeder – Technical Director

Signature

02/04/14

Date

DHL Analytical, Inc. **Date:** *04-Feb-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool TCEQ Belton, TX
Lab Order: 1401180

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Method SW6020A - Metals Analysis

Exception Report R1-01

The samples were received and log-in performed on 1/24/2014. A total of 26 samples were received and analyzed. The samples arrived in good condition and were properly packaged.

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool TCEQ Belton, TX
Lab Order: 1401180

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1401180-01	MW-22		01/21/14 01:45 PM	1/24/2014
1401180-02	MW-20		01/21/14 02:40 PM	1/24/2014
1401180-03	MW-37-90		01/21/14 03:30 PM	1/24/2014
1401180-04	MW-21		01/21/14 04:40 PM	1/24/2014
1401180-05	MW-38-90		01/21/14 05:40 PM	1/24/2014
1401180-06	MW-35-90		01/21/14 06:40 PM	1/24/2014
1401180-07	DUP-1		01/21/14	1/24/2014
1401180-08	ER-1		01/21/14 07:00 PM	1/24/2014
1401180-09	MW-11		01/22/14 09:50 AM	1/24/2014
1401180-10	MW-14		01/22/14 11:25 AM	1/24/2014
1401180-11	MW-10		01/22/14 12:10 PM	1/24/2014
1401180-12	MW-7		01/22/14 01:40 PM	1/24/2014
1401180-13	MW-19		01/22/14 02:40 PM	1/24/2014
1401180-14	MW-30-90		01/22/14 03:50 PM	1/24/2014
1401180-15	MW-24-90		01/22/14 04:40 PM	1/24/2014
1401180-16	MW-18		01/22/14 05:40 PM	1/24/2014
1401180-17	MW-29-90		01/22/14 06:40 PM	1/24/2014
1401180-18	ER-2		01/22/14 07:00 PM	1/24/2014
1401180-19	MW-27-90		01/23/14 09:40 AM	1/24/2014
1401180-20	MW-17		01/23/14 10:40 AM	1/24/2014
1401180-21	MW-28-90		01/23/14 11:40 AM	1/24/2014
1401180-22	MW-33-90		01/23/14 12:40 PM	1/24/2014
1401180-23	MW-34-90		01/23/14 01:40 PM	1/24/2014
1401180-24	MW-9		01/23/14 02:40 PM	1/24/2014
1401180-25	ER-3		01/23/14 03:00 PM	1/24/2014
1401180-26	DUP-2		01/23/14	1/24/2014

Lab Order: 1401180
Client: D. B. Stephens & Assoc, Inc.
Project: Rockwool TCEQ Belton, TX

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1401180-01A	MW-22	01/21/14 01:45 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/28/14 12:07 PM	61543
1401180-02A	MW-20	01/21/14 02:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/28/14 12:07 PM	61543
1401180-03A	MW-37-90	01/21/14 03:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/28/14 12:07 PM	61543
1401180-04A	MW-21	01/21/14 04:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-05A	MW-38-90	01/21/14 05:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/28/14 12:07 PM	61543
	MW-38-90	01/21/14 05:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/28/14 12:07 PM	61543
1401180-06A	MW-35-90	01/21/14 06:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/28/14 12:07 PM	61543
	MW-35-90	01/21/14 06:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/28/14 12:07 PM	61543
1401180-07A	DUP-1	01/21/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/28/14 12:07 PM	61543
	DUP-1	01/21/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/28/14 12:07 PM	61543
1401180-08A	ER-1	01/21/14 07:00 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	01/28/14 12:07 PM	61543
1401180-09A	MW-11	01/22/14 09:50 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/28/14 12:07 PM	61543
1401180-10A	MW-14	01/22/14 11:25 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/28/14 12:07 PM	61543
1401180-11A	MW-10	01/22/14 12:10 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-12A	MW-7	01/22/14 01:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-13A	MW-19	01/22/14 02:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-14A	MW-30-90	01/22/14 03:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-15A	MW-24-90	01/22/14 04:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-16A	MW-18	01/22/14 05:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-17A	MW-29-90	01/22/14 06:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-18A	ER-2	01/22/14 07:00 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-19A	MW-27-90	01/23/14 09:40 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-20A	MW-17	01/23/14 10:40 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-21A	MW-28-90	01/23/14 11:40 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-22A	MW-33-90	01/23/14 12:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-23A	MW-34-90	01/23/14 01:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-24A	MW-9	01/23/14 02:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551
1401180-25A	ER-3	01/23/14 03:00 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551

Lab Order: 1401180
Client: D. B. Stephens & Assoc, Inc.
Project: Rockwool TCEQ Belton, TX

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1401180-26A	DUP-2	01/23/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	01/29/14 08:30 AM	61551

Lab Order: 1401180
Client: D. B. Stephens & Assoc, Inc.
Project: Rockwool TCEQ Belton, TX

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1401180-01A	MW-22	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61543	1	01/29/14 03:34 PM	ICP-MS3_140129A
1401180-02A	MW-20	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61543	1	01/29/14 03:40 PM	ICP-MS3_140129A
1401180-03A	MW-37-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61543	1	01/29/14 05:02 PM	ICP-MS3_140129A
1401180-04A	MW-21	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 09:20 PM	ICP-MS3_140129A
1401180-05A	MW-38-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61543	1	01/29/14 05:08 PM	ICP-MS3_140129A
	MW-38-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61543	5	01/30/14 12:11 PM	ICP-MS3_140130A
1401180-06A	MW-35-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61543	1	01/29/14 05:14 PM	ICP-MS3_140129A
	MW-35-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61543	5	01/30/14 12:17 PM	ICP-MS3_140130A
1401180-07A	DUP-1	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61543	1	01/29/14 05:20 PM	ICP-MS3_140129A
	DUP-1	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61543	5	01/30/14 12:23 PM	ICP-MS3_140130A
1401180-08A	ER-1	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	61543	1	01/29/14 05:26 PM	ICP-MS3_140129A
1401180-09A	MW-11	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61543	1	01/29/14 05:32 PM	ICP-MS3_140129A
1401180-10A	MW-14	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61543	1	01/29/14 05:38 PM	ICP-MS3_140129A
1401180-11A	MW-10	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 09:45 PM	ICP-MS3_140129A
1401180-12A	MW-7	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 09:51 PM	ICP-MS3_140129A
1401180-13A	MW-19	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 09:57 PM	ICP-MS3_140129A
1401180-14A	MW-30-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 10:03 PM	ICP-MS3_140129A
1401180-15A	MW-24-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 10:09 PM	ICP-MS3_140129A
1401180-16A	MW-18	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 10:15 PM	ICP-MS3_140129A
1401180-17A	MW-29-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 10:21 PM	ICP-MS3_140129A
1401180-18A	ER-2	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 09:32 PM	ICP-MS3_140129A
1401180-19A	MW-27-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 11:39 PM	ICP-MS3_140129A
1401180-20A	MW-17	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 11:45 PM	ICP-MS3_140129A
1401180-21A	MW-28-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 11:52 PM	ICP-MS3_140129A
1401180-22A	MW-33-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 11:58 PM	ICP-MS3_140129A
1401180-23A	MW-34-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/30/14 12:04 AM	ICP-MS3_140129A
1401180-24A	MW-9	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/30/14 12:10 AM	ICP-MS3_140129A
1401180-25A	ER-3	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/29/14 09:39 PM	ICP-MS3_140129A

Lab Order: 1401180
Client: D. B. Stephens & Assoc, Inc.
Project: Rockwool TCEQ Belton, TX

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1401180-26A	DUP-2	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	61551	1	01/30/14 12:16 AM	ICP-MS3_140129A

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-22
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-01
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/21/14 01:45 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	01/29/14 03:34 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	01/29/14 03:34 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/29/14 03:34 PM
IS: Bismuth	110	0	70-200		%REC	1	01/29/14 03:34 PM
IS: Germanium	117	0	70-200		%REC	1	01/29/14 03:34 PM
IS: Indium	111	0	70-200		%REC	1	01/29/14 03:34 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-20
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-02
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/21/14 02:40 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.000879	0.000800	0.00250	J	mg/L	1	01/29/14 03:40 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	01/29/14 03:40 PM
Lead	0.000554	0.000300	0.00100	J	mg/L	1	01/29/14 03:40 PM
IS: Bismuth	100	0	70-200		%REC	1	01/29/14 03:40 PM
IS: Germanium	107	0	70-200		%REC	1	01/29/14 03:40 PM
IS: Indium	103	0	70-200		%REC	1	01/29/14 03:40 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-37-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-03
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/21/14 03:30 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00121	0.000800	0.00250	J	mg/L	1	01/29/14 05:02 PM
Arsenic	0.0437	0.00200	0.00500		mg/L	1	01/29/14 05:02 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/29/14 05:02 PM
IS: Bismuth	99.4	0	70-200		%REC	1	01/29/14 05:02 PM
IS: Germanium	109	0	70-200		%REC	1	01/29/14 05:02 PM
IS: Indium	101	0	70-200		%REC	1	01/29/14 05:02 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-21
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-04
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/21/14 04:40 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.336	0.000800	0.00250		mg/L	1	01/29/14 09:20 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	01/29/14 09:20 PM
Lead	0.000335	0.000300	0.00100	J	mg/L	1	01/29/14 09:20 PM
IS: Bismuth	101	0	70-200		%REC	1	01/29/14 09:20 PM
IS: Germanium	113	0	70-200		%REC	1	01/29/14 09:20 PM
IS: Indium	104	0	70-200		%REC	1	01/29/14 09:20 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-38-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-05
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/21/14 05:40 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.802	0.00400	0.0125		mg/L	5	01/30/14 12:11 PM
Arsenic	0.00412	0.00200	0.00500	J	mg/L	1	01/29/14 05:08 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/29/14 05:08 PM
IS: Bismuth	100	0	70-200		%REC	1	01/29/14 05:08 PM
IS: Germanium	102	0	70-200		%REC	1	01/29/14 05:08 PM
IS: Indium	99.5	0	70-200		%REC	5	01/30/14 12:11 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-35-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-06
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/21/14 06:40 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.604	0.00400	0.0125		mg/L	5	01/30/14 12:17 PM
Arsenic	0.0803	0.00200	0.00500		mg/L	1	01/29/14 05:14 PM
Lead	0.000511	0.000300	0.00100	J	mg/L	1	01/29/14 05:14 PM
IS: Bismuth	95.4	0	70-200		%REC	1	01/29/14 05:14 PM
IS: Germanium	109	0	70-200		%REC	1	01/29/14 05:14 PM
IS: Indium	99.6	0	70-200		%REC	5	01/30/14 12:17 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	DUP-1
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-07
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/21/14
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.594	0.00400	0.0125		mg/L	5	01/30/14 12:23 PM
Arsenic	0.0809	0.00200	0.00500		mg/L	1	01/29/14 05:20 PM
Lead	0.000764	0.000300	0.00100	J	mg/L	1	01/29/14 05:20 PM
IS: Bismuth	99.0	0	70-200		%REC	1	01/29/14 05:20 PM
IS: Germanium	107	0	70-200		%REC	1	01/29/14 05:20 PM
IS: Indium	97.2	0	70-200		%REC	5	01/30/14 12:23 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	ER-1
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-08
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/21/14 07:00 PM
Lab Order:	1401180	**Matrix:**	EQUIP BLANK

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	01/29/14 05:26 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	01/29/14 05:26 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/29/14 05:26 PM
IS: Bismuth	111	0	70-200		%REC	1	01/29/14 05:26 PM
IS: Germanium	120	0	70-200		%REC	1	01/29/14 05:26 PM
IS: Indium	110	0	70-200		%REC	1	01/29/14 05:26 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-11
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-09
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/22/14 09:50 AM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	01/29/14 05:32 PM
Arsenic	0.00228	0.00200	0.00500	J	mg/L	1	01/29/14 05:32 PM
Lead	0.00362	0.000300	0.00100		mg/L	1	01/29/14 05:32 PM
IS: Bismuth	105	0	70-200		%REC	1	01/29/14 05:32 PM
IS: Germanium	113	0	70-200		%REC	1	01/29/14 05:32 PM
IS: Indium	107	0	70-200		%REC	1	01/29/14 05:32 PM

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-14
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-10
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/22/14 11:25 AM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	01/29/14 05:38 PM
Arsenic	0.00224	0.00200	0.00500	J	mg/L	1	01/29/14 05:38 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/29/14 05:38 PM
IS: Bismuth	101	0	70-200		%REC	1	01/29/14 05:38 PM
IS: Germanium	116	0	70-200		%REC	1	01/29/14 05:38 PM
IS: Indium	103	0	70-200		%REC	1	01/29/14 05:38 PM

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-10
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-11
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/22/14 12:10 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	01/29/14 09:45 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	01/29/14 09:45 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/29/14 09:45 PM
IS: Bismuth	102	0	70-200		%REC	1	01/29/14 09:45 PM
IS: Germanium	113	0	70-200		%REC	1	01/29/14 09:45 PM
IS: Indium	105	0	70-200		%REC	1	01/29/14 09:45 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-7
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-12
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/22/14 01:40 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00116	0.000800	0.00250	J	mg/L	1	01/29/14 09:51 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	01/29/14 09:51 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/29/14 09:51 PM
IS: Bismuth	96.8	0	70-200		%REC	1	01/29/14 09:51 PM
IS: Germanium	110	0	70-200		%REC	1	01/29/14 09:51 PM
IS: Indium	100	0	70-200		%REC	1	01/29/14 09:51 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-19
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-13
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/22/14 02:40 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00141	0.000800	0.00250	J	mg/L	1	01/29/14 09:57 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	01/29/14 09:57 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/29/14 09:57 PM
IS: Bismuth	96.9	0	70-200		%REC	1	01/29/14 09:57 PM
IS: Germanium	107	0	70-200		%REC	1	01/29/14 09:57 PM
IS: Indium	101	0	70-200		%REC	1	01/29/14 09:57 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-30-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-14
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/22/14 03:50 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00128	0.000800	0.00250	J	mg/L	1	01/29/14 10:03 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	01/29/14 10:03 PM
Lead	0.00150	0.000300	0.00100		mg/L	1	01/29/14 10:03 PM
IS: Bismuth	90.1	0	70-200		%REC	1	01/29/14 10:03 PM
IS: Germanium	104	0	70-200		%REC	1	01/29/14 10:03 PM
IS: Indium	93.8	0	70-200		%REC	1	01/29/14 10:03 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-24-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-15
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/22/14 04:40 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0128	0.000800	0.00250		mg/L	1	01/29/14 10:09 PM
Arsenic	0.0124	0.00200	0.00500		mg/L	1	01/29/14 10:09 PM
Lead	0.00132	0.000300	0.00100		mg/L	1	01/29/14 10:09 PM
IS: Bismuth	90.0	0	70-200		%REC	1	01/29/14 10:09 PM
IS: Germanium	98.4	0	70-200		%REC	1	01/29/14 10:09 PM
IS: Indium	92.7	0	70-200		%REC	1	01/29/14 10:09 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-18
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-16
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/22/14 05:40 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.000809	0.000800	0.00250	J	mg/L	1	01/29/14 10:15 PM
Arsenic	0.00265	0.00200	0.00500	J	mg/L	1	01/29/14 10:15 PM
Lead	0.000877	0.000300	0.00100	J	mg/L	1	01/29/14 10:15 PM
IS: Bismuth	88.0	0	70-200		%REC	1	01/29/14 10:15 PM
IS: Germanium	97.5	0	70-200		%REC	1	01/29/14 10:15 PM
IS: Indium	94.1	0	70-200		%REC	1	01/29/14 10:15 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-29-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-17
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/22/14 06:40 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0169	0.000800	0.00250		mg/L	1	01/29/14 10:21 PM
Arsenic	0.00441	0.00200	0.00500	J	mg/L	1	01/29/14 10:21 PM
Lead	0.00159	0.000300	0.00100		mg/L	1	01/29/14 10:21 PM
IS: Bismuth	92.5	0	70-200		%REC	1	01/29/14 10:21 PM
IS: Germanium	98.7	0	70-200		%REC	1	01/29/14 10:21 PM
IS: Indium	95.2	0	70-200		%REC	1	01/29/14 10:21 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	ER-2
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-18
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/22/14 07:00 PM
Lab Order:	1401180	**Matrix:**	EQUIP BLANK

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	01/29/14 09:32 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	01/29/14 09:32 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/29/14 09:32 PM
IS: Bismuth	108	0	70-200		%REC	1	01/29/14 09:32 PM
IS: Germanium	114	0	70-200		%REC	1	01/29/14 09:32 PM
IS: Indium	109	0	70-200		%REC	1	01/29/14 09:32 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-27-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-19
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/23/14 09:40 AM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0554	0.000800	0.00250		mg/L	1	01/29/14 11:39 PM
Arsenic	0.00219	0.00200	0.00500	J	mg/L	1	01/29/14 11:39 PM
Lead	0.000746	0.000300	0.00100	J	mg/L	1	01/29/14 11:39 PM
IS: Bismuth	97.8	0	70-200		%REC	1	01/29/14 11:39 PM
IS: Germanium	102	0	70-200		%REC	1	01/29/14 11:39 PM
IS: Indium	103	0	70-200		%REC	1	01/29/14 11:39 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-17
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-20
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/23/14 10:40 AM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0256	0.000800	0.00250		mg/L	1	01/29/14 11:45 PM
Arsenic	0.00472	0.00200	0.00500	J	mg/L	1	01/29/14 11:45 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/29/14 11:45 PM
IS: Bismuth	101	0	70-200		%REC	1	01/29/14 11:45 PM
IS: Germanium	107	0	70-200		%REC	1	01/29/14 11:45 PM
IS: Indium	105	0	70-200		%REC	1	01/29/14 11:45 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-28-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-21
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/23/14 11:40 AM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0412	0.000800	0.00250		mg/L	1	01/29/14 11:52 PM
Arsenic	0.125	0.00200	0.00500		mg/L	1	01/29/14 11:52 PM
Lead	0.000501	0.000300	0.00100	J	mg/L	1	01/29/14 11:52 PM
IS: Bismuth	93.5	0	70-200		%REC	1	01/29/14 11:52 PM
IS: Germanium	110	0	70-200		%REC	1	01/29/14 11:52 PM
IS: Indium	97.9	0	70-200		%REC	1	01/29/14 11:52 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-33-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-22
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/23/14 12:40 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.132	0.000800	0.00250		mg/L	1	01/29/14 11:58 PM
Arsenic	0.0321	0.00200	0.00500		mg/L	1	01/29/14 11:58 PM
Lead	0.000768	0.000300	0.00100	J	mg/L	1	01/29/14 11:58 PM
IS: Bismuth	91.5	0	70-200		%REC	1	01/29/14 11:58 PM
IS: Germanium	99.9	0	70-200		%REC	1	01/29/14 11:58 PM
IS: Indium	94.9	0	70-200		%REC	1	01/29/14 11:58 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-34-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-23
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/23/14 01:40 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.306	0.000800	0.00250		mg/L	1	01/30/14 12:04 AM
Arsenic	0.415	0.00200	0.00500		mg/L	1	01/30/14 12:04 AM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/30/14 12:04 AM
IS: Bismuth	93.3	0	70-200		%REC	1	01/30/14 12:04 AM
IS: Germanium	109	0	70-200		%REC	1	01/30/14 12:04 AM
IS: Indium	97.3	0	70-200		%REC	1	01/30/14 12:04 AM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-9
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-24
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/23/14 02:40 PM
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.250	0.000800	0.00250		mg/L	1	01/30/14 12:10 AM
Arsenic	0.122	0.00200	0.00500		mg/L	1	01/30/14 12:10 AM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/30/14 12:10 AM
IS: Bismuth	93.8	0	70-200		%REC	1	01/30/14 12:10 AM
IS: Germanium	101	0	70-200		%REC	1	01/30/14 12:10 AM
IS: Indium	97.6	0	70-200		%REC	1	01/30/14 12:10 AM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	ER-3
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-25
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/23/14 03:00 PM
Lab Order:	1401180	**Matrix:**	EQUIP BLANK

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	01/29/14 09:39 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	01/29/14 09:39 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/29/14 09:39 PM
IS: Bismuth	106	0	70-200		%REC	1	01/29/14 09:39 PM
IS: Germanium	114	0	70-200		%REC	1	01/29/14 09:39 PM
IS: Indium	107	0	70-200		%REC	1	01/29/14 09:39 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	DUP-2
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1401180-26
Project No:	ES14.AIR0.12.00002	**Collection Date:**	01/23/14
Lab Order:	1401180	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.300	0.000800	0.00250		mg/L	1	01/30/14 12:16 AM
Arsenic	0.410	0.00200	0.00500		mg/L	1	01/30/14 12:16 AM
Lead	<0.000300	0.000300	0.00100		mg/L	1	01/30/14 12:16 AM
IS: Bismuth	94.8	0	70-200		%REC	1	01/30/14 12:16 AM
IS: Germanium	102	0	70-200		%REC	1	01/30/14 12:16 AM
IS: Indium	98.3	0	70-200		%REC	1	01/30/14 12:16 AM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1401180
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140103A

Sample ID **DCS-58199-1** Batch ID: **58199** TestNo: **SW6020A** Units: **mg/L**
SampType: **DCS** Run ID: **ICP-MS3_140103A** Analysis Date: **1/3/2014 12:11:00 PM** Prep Date: **7/2/2013**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.000921	0.00250	0.00100	0	92.1	80	120	0	0	
Arsenic	0.000970	0.00500	0.00100	0	97.0	80	120	0	0	
Lead	0.000976	0.00100	0.00100	0	97.6	80	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1401180
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140129A

The QC data in batch 61543 applies to the following samples: 1401180-01A, 1401180-02A, 1401180-03A, 1401180-05A, 1401180-06A, 1401180-07A, 1401180-08A, 1401180-09A, 1401180-10A

Sample ID **MB-61543** Batch ID: **61543** TestNo: **SW6020A** Units: **mg/L**
SampType: **MBLK** Run ID: **ICP-MS3_140129A** Analysis Date: **1/29/2014 2:16:00 PM** Prep Date: **1/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Lead	<0.000300	0.00100								
IS: Bismuth	0.200		0.200		103	70	200			

Sample ID **LCS-61543** Batch ID: **61543** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCS** Run ID: **ICP-MS3_140129A** Analysis Date: **1/29/2014 2:22:00 PM** Prep Date: **1/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.203	0.00250	0.200	0	102	80	120			
Arsenic	0.217	0.00500	0.200	0	109	80	120			
Lead	0.205	0.00100	0.200	0	102	80	120			
IS: Bismuth	0.200		0.200		98.3	70	200			

Sample ID **LCSD-61543** Batch ID: **61543** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS3_140129A** Analysis Date: **1/29/2014 2:28:00 PM** Prep Date: **1/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.209	0.00250	0.200	0	105	80	120	3.01	15	
Arsenic	0.218	0.00500	0.200	0	109	80	120	0.597	15	
Lead	0.207	0.00100	0.200	0	104	80	120	1.21	15	
IS: Bismuth	0.200		0.200		97.1	70	200	0	0	

Sample ID **1401171-08B SD** Batch ID: **61543** TestNo: **SW6020A** Units: **mg/L**
SampType: **SD** Run ID: **ICP-MS3_140129A** Analysis Date: **1/29/2014 2:46:00 PM** Prep Date: **1/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.00400	0.0125	0	0				0	10	
Arsenic	<0.0100	0.0250	0	0				0	10	
Lead	<0.00150	0.00500	0	0.000338				0	10	
IS: Bismuth	1.00		0.200		107	70	200	0	0	
IS: Germanium	1.00		0.200		113	70	200	0	0	
IS: Indium	1.00		0.200		105	70	200	0	0	

Sample ID **1401171-08B PDS** Batch ID: **61543** TestNo: **SW6020A** Units: **mg/L**
SampType: **PDS** Run ID: **ICP-MS3_140129A** Analysis Date: **1/29/2014 3:47:00 PM** Prep Date: **1/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.182	0.00250	0.200	0	90.9	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1401180
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140129A

Sample ID **1401171-08B PDS**	Batch ID: **61543**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **PDS**	Run ID: **ICP-MS3_140129A**	Analysis Date: **1/29/2014 3:47:00 PM**	Prep Date: **1/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.203	0.00500	0.200	0	102	80	120			
Lead	0.199	0.00100	0.200	0.000338	99.2	80	120			
IS: Bismuth	0.200		0.200		109	70	200			

Sample ID **1401171-08B MS**	Batch ID: **61543**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MS**	Run ID: **ICP-MS3_140129A**	Analysis Date: **1/29/2014 3:52:00 PM**	Prep Date: **1/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.203	0.00250	0.200	0	101	80	120			
Arsenic	0.210	0.00500	0.200	0	105	80	120			
Lead	0.204	0.00100	0.200	0.000338	102	80	120			
IS: Bismuth	0.200		0.200		111	70	200			

Sample ID **1401171-08B MSD**	Batch ID: **61543**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MSD**	Run ID: **ICP-MS3_140129A**	Analysis Date: **1/29/2014 3:58:00 PM**	Prep Date: **1/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.200	0.00250	0.200	0	99.8	80	120	1.54	15	
Arsenic	0.211	0.00500	0.200	0	106	80	120	0.427	15	
Lead	0.206	0.00100	0.200	0.000338	103	80	120	0.928	15	
IS: Bismuth	0.200		0.200		109	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1401180
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140129A

The QC data in batch 61551 applies to the following samples: 1401180-04A, 1401180-11A, 1401180-12A, 1401180-13A, 1401180-14A, 1401180-15A, 1401180-16A, 1401180-17A, 1401180-18A, 1401180-19A, 1401180-20A, 1401180-21A, 1401180-22A, 1401180-23A, 1401180-24A, 1401180-25A, 1401180-26A

Sample ID **MB-61551** Batch ID: **61551** TestNo: **SW6020A** Units: **mg/L**
SampType: **MBLK** Run ID: **ICP-MS3_140129A** Analysis Date: **1/29/2014 8:56:00 PM** Prep Date: **1/29/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Lead	<0.000300	0.00100								
IS: Bismuth	0.200		0.200		107	70	200			
IS: Germanium	0.200		0.200		116	70	200			
IS: Indium	0.200		0.200		109	70	200			

Sample ID **LCS-61551** Batch ID: **61551** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCS** Run ID: **ICP-MS3_140129A** Analysis Date: **1/29/2014 9:02:00 PM** Prep Date: **1/29/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.204	0.00250	0.200	0	102	80	120			
Arsenic	0.215	0.00500	0.200	0	108	80	120			
Lead	0.205	0.00100	0.200	0	103	80	120			
IS: Bismuth	0.200		0.200		104	70	200			
IS: Germanium	0.200		0.200		114	70	200			
IS: Indium	0.200		0.200		106	70	200			

Sample ID **LCSD-61551** Batch ID: **61551** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS3_140129A** Analysis Date: **1/29/2014 9:08:00 PM** Prep Date: **1/29/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.205	0.00250	0.200	0	103	80	120	0.489	15	
Arsenic	0.215	0.00500	0.200	0	108	80	120	0.046	15	
Lead	0.199	0.00100	0.200	0	99.5	80	120	3.02	15	
IS: Bismuth	0.200		0.200		101	70	200	0	0	
IS: Germanium	0.200		0.200		110	70	200	0	0	
IS: Indium	0.200		0.200		102	70	200	0	0	

Sample ID **1401180-04A SD** Batch ID: **61551** TestNo: **SW6020A** Units: **mg/L**
SampType: **SD** Run ID: **ICP-MS3_140129A** Analysis Date: **1/29/2014 9:26:00 PM** Prep Date: **1/29/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.334	0.0125	0	0.336				0.776	10	
Arsenic	<0.0100	0.0250	0	0				0	10	
Lead	<0.00150	0.00500	0	0.000335				0	10	
IS: Bismuth	1.00		0.200		105	70	200	0	0	
IS: Germanium	1.00		0.200		113	70	200	0	0	
IS: Indium	1.00		0.200		106	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1401180
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140129A

Sample ID **1401180-04A PDS**	Batch ID: **61551**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **PDS**	Run ID: **ICP-MS3_140129A**	Analysis Date: **1/29/2014 10:27:00 PM**	Prep Date: **1/29/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.539	0.00250	0.200	0.336	101	80	120			
Arsenic	0.220	0.00500	0.200	0	110	80	120			
Lead	0.206	0.00100	0.200	0.000335	103	80	120			
IS: Bismuth	0.200		0.200		89.3	70	200			
IS: Germanium	0.200		0.200		98.4	70	200			
IS: Indium	0.200		0.200		91.3	70	200			

Sample ID **1401180-04A MS**	Batch ID: **61551**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MS**	Run ID: **ICP-MS3_140129A**	Analysis Date: **1/29/2014 10:33:00 PM**	Prep Date: **1/29/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.564	0.00250	0.200	0.336	114	80	120			
Arsenic	0.224	0.00500	0.200	0	112	80	120			
Lead	0.205	0.00100	0.200	0.000335	102	80	120			
IS: Bismuth	0.200		0.200		93.4	70	200			
IS: Germanium	0.200		0.200		99.6	70	200			
IS: Indium	0.200		0.200		95.6	70	200			

Sample ID **1401180-04A MSD**	Batch ID: **61551**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MSD**	Run ID: **ICP-MS3_140129A**	Analysis Date: **1/29/2014 10:39:00 PM**	Prep Date: **1/29/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.563	0.00250	0.200	0.336	113	80	120	0.177	15	
Arsenic	0.225	0.00500	0.200	0	113	80	120	0.847	15	
Lead	0.208	0.00100	0.200	0.000335	104	80	120	1.11	15	
IS: Bismuth	0.200		0.200		94.0	70	200	0	0	
IS: Germanium	0.200		0.200		101	70	200	0	0	
IS: Indium	0.200		0.200		96.3	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1401180
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140129A

Sample ID **ICV1-140129**	Batch ID: **R70907**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_140129A**	Analysis Date: **1/29/2014 1:46:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0966	0.00250	0.100	0	96.6	90	110			
Arsenic	0.102	0.00500	0.100	0	102	90	110			
Lead	0.0976	0.00100	0.100	0	97.6	90	110			
IS: Bismuth	0.200		0.200		101	70	200			

Sample ID **ILCVL-140129**	Batch ID: **R70907**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140129A**	Analysis Date: **1/29/2014 2:04:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00209	0.00250	0.00200	0	105	70	130			
Arsenic	0.00556	0.00500	0.00500	0	111	70	130			
Lead	0.00103	0.00100	0.00100	0	103	70	130			
IS: Bismuth	0.200		0.200		102	70	200			

Sample ID **CCV1-140129**	Batch ID: **R70907**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_140129A**	Analysis Date: **1/29/2014 4:13:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.206	0.00500	0.200	0	103	90	110			
Lead	0.199	0.00100	0.200	0	99.4	90	110			
IS: Bismuth	0.200		0.200		108	70	200			

Sample ID **CCV1-140129**	Batch ID: **R70907**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_140129A**	Analysis Date: **1/29/2014 4:25:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.201	0.00250	0.200	0	101	90	110			
IS: Indium	0.200		0.200		103	70	200			

Sample ID **LCVL1-140129**	Batch ID: **R70907**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140129A**	Analysis Date: **1/29/2014 4:44:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00225	0.00250	0.00200	0	112	70	130			
Arsenic	0.00557	0.00500	0.00500	0	111	70	130			
Lead	0.00106	0.00100	0.00100	0	106	70	130			
IS: Bismuth	0.200		0.200		104	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1401180
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140129A

Sample ID **CCV2-140129** Batch ID: **R70907** TestNo: **SW6020A** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS3_140129A** Analysis Date: **1/29/2014 5:56:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.201	0.00250	0.200	0	101	90	110			
Arsenic	0.212	0.00500	0.200	0	106	90	110			
Lead	0.211	0.00100	0.200	0	105	90	110			
IS: Bismuth	0.200		0.200		103	70	200			

Sample ID **LCVL2-140129** Batch ID: **R70907** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS3_140129A** Analysis Date: **1/29/2014 6:33:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00223	0.00250	0.00200	0	111	70	130			
Arsenic	0.00558	0.00500	0.00500	0	112	70	130			
Lead	0.00105	0.00100	0.00100	0	105	70	130			
IS: Bismuth	0.200		0.200		112	70	200			

Sample ID **CCV3-140129** Batch ID: **R70907** TestNo: **SW6020A** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS3_140129A** Analysis Date: **1/29/2014 8:02:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.198	0.00250	0.200	0	99.1	90	110			
Arsenic	0.214	0.00500	0.200	0	107	90	110			
Lead	0.208	0.00100	0.200	0	104	90	110			
IS: Bismuth	0.200		0.200		108	70	200			

Sample ID **LCVL3-140129** Batch ID: **R70907** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS3_140129A** Analysis Date: **1/29/2014 8:38:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00218	0.00250	0.00200	0	109	70	130			
Arsenic	0.00564	0.00500	0.00500	0	113	70	130			
Lead	0.00108	0.00100	0.00100	0	108	70	130			
IS: Bismuth	0.200		0.200		107	70	200			

Sample ID **CCV4-140129** Batch ID: **R70907** TestNo: **SW6020A** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS3_140129A** Analysis Date: **1/29/2014 10:45:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.206	0.00250	0.200	0	103	90	110			
Arsenic	0.219	0.00500	0.200	0	110	90	110			
Lead	0.215	0.00100	0.200	0	108	90	110			
IS: Bismuth	0.200		0.200		100	70	200			
IS: Germanium	0.200		0.200		106	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1401180
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140129A

Sample ID **CCV4-140129**	Batch ID: **R70907**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_140129A**	Analysis Date: **1/29/2014 10:45:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
IS: Indium	0.200		0.200		102	70	200			

Sample ID **LCVL4-140129**	Batch ID: **R70907**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140129A**	Analysis Date: **1/29/2014 11:21:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00230	0.00250	0.00200	0	115	70	130			
Arsenic	0.00562	0.00500	0.00500	0	112	70	130			
Lead	0.00107	0.00100	0.00100	0	107	70	130			
IS: Bismuth	0.200		0.200		96.8	70	200			
IS: Germanium	0.200		0.200		103	70	200			
IS: Indium	0.200		0.200		97.1	70	200			

Sample ID **CCV5-140129**	Batch ID: **R70907**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_140129A**	Analysis Date: **1/30/2014 12:22:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.201	0.00250	0.200	0	100	90	110			
Arsenic	0.214	0.00500	0.200	0	107	90	110			
Lead	0.211	0.00100	0.200	0	105	90	110			
IS: Bismuth	0.200		0.200		106	70	200			
IS: Germanium	0.200		0.200		106	70	200			
IS: Indium	0.200		0.200		106	70	200			

Sample ID **LCVL5-140129**	Batch ID: **R70907**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140129A**	Analysis Date: **1/30/2014 12:58:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00226	0.00250	0.00200	0	113	70	130			
Arsenic	0.00575	0.00500	0.00500	0	115	70	130			
Lead	0.00112	0.00100	0.00100	0	112	70	130			
IS: Bismuth	0.200		0.200		108	70	200			
IS: Germanium	0.200		0.200		112	70	200			
IS: Indium	0.200		0.200		108	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1401180
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140130A

Sample ID **ICV1-140130**	Batch ID: **R70941**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_140130A**	Analysis Date: **1/30/2014 11:34:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0951	0.00250	0.100	0	95.1	90	110			
IS: Indium	0.200		0.200		101	70	200			

Sample ID **ILCVL-140130**	Batch ID: **R70941**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140130A**	Analysis Date: **1/30/2014 11:52:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00199	0.00250	0.00200	0	99.6	70	130			
IS: Indium	0.200		0.200		102	70	200			

Sample ID **CCV1-140130**	Batch ID: **R70941**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_140130A**	Analysis Date: **1/30/2014 1:29:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.193	0.00250	0.200	0	96.6	90	110			
IS: Indium	0.200		0.200		91.5	70	200			

Sample ID **LCVL1-140130**	Batch ID: **R70941**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140130A**	Analysis Date: **1/30/2014 1:59:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00232	0.00250	0.00200	0	116	70	130			
IS: Indium	0.200		0.200		90.5	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

DHL Analytical, Inc.

Date: *04-Feb-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1401180
Project: Rockwool TCEQ Belton, TX

MQL SUMMARY REPORT

TestNo: SW6020A	MDL	MQL
Analyte	**mg/L**	**mg/L**
Antimony	0.000800	0.00250
Arsenic	0.00200	0.00500
Lead	0.000300	0.00100

Qualifiers: MQL -Method Quantitation Limit as defined by TRRP
MDL -Method Detection Limit as defined by TRRP

ICP-MS3
For

DHL Work Order
1401180

ICP-MS3_140129A
For

DHL Work Order
1401180

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS3_140129A SOP: Metals-ICP-MS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			X
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			X
P/A Factor	Before ICAL	Increasing trend	X			
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			X
ICSAB (N/A for Method 200.8)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLS and ICSA/ICSAB is N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			X
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%	X			
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%			X	
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%		X		
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)	X			
Dilution Test (SD) - RPD	Every Batch	10		X		
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)		X		

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			X
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> 5% of highest standard	X			
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality			X	X
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

TECHNICAL DIRECTOR / QA MANAGER APPROVAL SIGNATURE AND DATE STAMP:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> MDL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag data / Case narrative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

See notes in Run Log

Analyst: [signature] Date of Completion: 1/30/2014

Second-Level Review: [signature] Reviewer Date Stamp: 1/30/2014

DHL Analytical, Inc.

Run ID: ICP-MS3_140129A **Run No.:** 70907

Analytical Run Date: 1/29/2014 **InstrumentID:** ICP-MS3

Analyst: Sara Wieland

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TW	CAL	R70907	1/29/2014 12:22:00 PM		
1/20 ppb STD.	1	ICPMS_TW	CAL	R70907	1/29/2014 12:28:00 PM		
10/200 ppb STD.	1	ICPMS_TW	CAL	R70907	1/29/2014 12:34:00 PM		
50/1000 ppb STD.	1	ICPMS_TW	CAL	R70907	1/29/2014 12:40:00 PM		
100/2000 ppb STD.	1	ICPMS_TW	CAL	R70907	1/29/2014 12:46:00 PM		
250/5000 ppb STD.	1	ICPMS_TW	CAL	R70907	1/29/2014 12:52:00 PM		
500/10000 ppb STD.	1	ICPMS_TW	CAL	R70907	1/29/2014 12:58:00 PM		
2000/25000 ppb STD.	1	ICPMS_TW	CAL	R70907	1/29/2014 1:04:00 PM		
ICSA-140129	1	ICPMS_TW	ICSA	R70907	1/29/2014 1:22:00 PM		
ICSAB-140129	1	ICPMS_TW	ICSB	R70907	1/29/2014 1:28:00 PM		
ICV1-140129	1	6020A_W	ICV	R70907	1/29/2014 1:46:00 PM		
ILCVL-140129	1	6020A_W	LCVL	R70907	1/29/2014 2:04:00 PM		
ICB1-140129	1	6020A_W	ICB	R70907	1/29/2014 2:10:00 PM		
MB-61543	1	6020A_W	MBLK	61543	1/29/2014 2:16:00 PM		
LCS-61543	1	6020A_W	LCS	61543	1/29/2014 2:22:00 PM		
LCSD-61543	1	6020A_W	LCSD	61543	1/29/2014 2:28:00 PM		
1401171-08B	1	6020A_W	SAMP	61543	1/29/2014 2:40:00 PM		
1401171-08B SD	5	6020A_W	SD	61543	1/29/2014 2:46:00 PM		
1401171-02B	1	6020A_W	SAMP	61543	1/29/2014 2:52:00 PM		
1401171-03B	1	6020A_W	SAMP	61543	1/29/2014 2:58:00 PM		
1401171-04B	1	6020A_W	SAMP	61543	1/29/2014 3:04:00 PM		
1401171-05B	1	6020A_W	SAMP	61543	1/29/2014 3:10:00 PM		
1401171-06B	1	6020A_W	SAMP	61543	1/29/2014 3:16:00 PM		
1401171-07B	1	6020A_W	SAMP	61543	1/29/2014 3:22:00 PM		
1401171-10B	1	6020A_W	SAMP	61543	1/29/2014 3:28:00 PM		
1401180-01A	1	6020A_W	SAMP	61543	1/29/2014 3:34:00 PM		
1401180-02A	1	6020A_W	SAMP	61543	1/29/2014 3:40:00 PM		
1401171-08B PDS	1	6020A_W	PDS	61543	1/29/2014 3:47:00 PM		
1401171-08B MS	1	6020A_W	MS	61543	1/29/2014 3:52:00 PM		
1401171-08B MSD	1	6020A_W	MSD	61543	1/29/2014 3:58:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140109	ICPMS CCV 200/5000 PPB		04/09/2014
MET-H2CAL-1401	ICPMS High Cal2 2000ppb std 8		04/09/2014
MET-HCAL-14010	ICPMS High Cal 500ppb/10ppm s		04/09/2014
MET-ICV-131108	ICPMS ICV 100 ppb		02/06/2014
MET-IS-131122	INTERNAL STANDARD 1 PPM		02/20/2014
MET-L2CAL-14010	ICPMS Low Cal2 1/20ppb std 2		04/09/2014
MET-LCAL-140109	ICPMS Low Cal 10/200ppb std 3		04/09/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		04/09/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		04/09/2014
MET-MCAL-14010	ICPMS Mid Cal 250/5000ppb std		04/09/2014
MET-PA-130501	ICPMS PA FACTOR SOLUTION		05/01/2014
MET-PDS-140117	250 PPM Naturals+Al+Fe PDS		04/17/2014
MET-PDS-140120-	10 PPM CUSTOM PDS SOLUTI		04/20/2014
MET-PDS-140120-	10 PPM Ag+Sb PDS		04/20/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		04/16/2014

Run ID: ICP-MS3_140129A **Run No.:** 70907

CCV1-140129	1	6020A_W	CCV	R70907	1/29/2014 4:13:00 PM		
CCV1-140129	1	6020A_W	CCV	R70907	1/29/2014 4:25:00 PM		
LCVL1-140129	1	6020A_W	LCVL	R70907	1/29/2014 4:44:00 PM		
CCB1-140129	1	6020A_W	CCB	R70907	1/29/2014 4:56:00 PM		
1401180-03A	1	6020A_W	SAMP	61543	1/29/2014 5:02:00 PM		
1401180-05A	1	6020A_W	SAMP	61543	1/29/2014 5:08:00 PM		
1401180-06A	1	6020A_W	SAMP	61543	1/29/2014 5:14:00 PM		
1401180-07A	1	6020A_W	SAMP	61543	1/29/2014 5:20:00 PM		
1401180-08A	1	6020A_W	SAMP	61543	1/29/2014 5:26:00 PM		
1401180-09A	1	6020A_W	SAMP	61543	1/29/2014 5:32:00 PM		
1401180-10A	1	6020A_W	SAMP	61543	1/29/2014 5:38:00 PM		
1401171-02B	5	6020A_W	SAMP	61543	1/29/2014 5:44:00 PM		
1401171-10B	5	6020A_W	SAMP	61543	1/29/2014 5:50:00 PM		
CCV2-140129	1	6020A_W	CCV	R70907	1/29/2014 5:56:00 PM		
CCV2-140129	1	6020A_W	CCV	R70907	1/29/2014 6:02:00 PM		
LCVL2-140129	1	6020A_W	LCVL	R70907	1/29/2014 6:33:00 PM		
CCB2-140129	1	6020A_W	CCB	R70907	1/29/2014 6:45:00 PM		
MB-61561	5	6020A_S	MBLK	61561	1/29/2014 6:51:00 PM		
LCS-61561	5	6020A_S	LCS	61561	1/29/2014 6:57:00 PM		
LCSD-61561	5	6020A_S	LCSD	61561	1/29/2014 7:03:00 PM		
1401211-01C	5	6020A_S	SAMP	61561	1/29/2014 7:15:00 PM		
1401211-01C SD	25	6020A_S	SD	61561	1/29/2014 7:21:00 PM		R-flag Be; PDS passes, data accepted.
1401210-01A	5	6020A_S	SAMP	61561	1/29/2014 7:27:00 PM		
1401210-02A	5	6020A_S	SAMP	61561	1/29/2014 7:33:00 PM		
1401210-03A	5	6020A_S	SAMP	61561	1/29/2014 7:38:00 PM		
1401211-01C PDS	5	6020A_S	PDS	61561	1/29/2014 7:44:00 PM		S-flag Ba, Ag; SD passes, data accepted.
1401211-01C MS	5	6020A_S	MS	61561	1/29/2014 7:50:00 PM		S-flag Sb, Ba
1401211-01C MSD	5	6020A_S	MSD	61561	1/29/2014 7:56:00 PM		S-flag Sb, Ba
CCV3-140129	1	6020A_W	CCV	R70907	1/29/2014 8:02:00 PM		
LCVL3-140129	1	6020A_W	LCVL	R70907	1/29/2014 8:38:00 PM		
CCB3-140129	1	6020A_W	CCB	R70907	1/29/2014 8:50:00 PM		
MB-61551	1	6020A_W	MBLK	61551	1/29/2014 8:56:00 PM		
LCS-61551	1	6020A_W	LCS	61551	1/29/2014 9:02:00 PM		
LCSD-61551	1	6020A_W	LCSD	61551	1/29/2014 9:08:00 PM		
1401180-04A	1	6020A_W	SAMP	61551	1/29/2014 9:20:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140109	ICPMS CCV 200/5000 PPB		04/09/2014
MET-H2CAL-1401	ICPMS High Cal2 2000ppb std 8		04/09/2014
MET-HCAL-14010	ICPMS High Cal 500ppb/10ppm s		04/09/2014
MET-ICV-131108	ICPMS ICV 100 ppb		02/06/2014
MET-IS-131122	INTERNAL STANDARD 1 PPM		02/20/2014
MET-L2CAL-14010	ICPMS Low Cal2 1/20ppb std 2		04/09/2014
MET-LCAL-140109	ICPMS Low Cal 10/200ppb std 3		04/09/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		04/09/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		04/09/2014
MET-MCAL-14010	ICPMS Mid Cal 250/5000ppb std		04/09/2014
MET-PA-130501	ICPMS PA FACTOR SOLUTION		05/01/2014
MET-PDS-140117	250 PPM Naturals+Al+Fe PDS		04/17/2014
MET-PDS-140120-	10 PPM CUSTOM PDS SOLUTI		04/20/2014
MET-PDS-140120-	10 PPM Ag+Sb PDS		04/20/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		04/16/2014

DHL Analytical, Inc.

Run ID: ICP-MS3_140129A **Run No.:** 70907

1401180-04A SD	5	6020A_W	SD	61551	1/29/2014 9:26:00 PM		
1401180-18A	1	6020A_W	SAMP	61551	1/29/2014 9:32:00 PM		
1401180-25A	1	6020A_W	SAMP	61551	1/29/2014 9:39:00 PM		
1401180-11A	1	6020A_W	SAMP	61551	1/29/2014 9:45:00 PM		
1401180-12A	1	6020A_W	SAMP	61551	1/29/2014 9:51:00 PM		
1401180-13A	1	6020A_W	SAMP	61551	1/29/2014 9:57:00 PM		
1401180-14A	1	6020A_W	SAMP	61551	1/29/2014 10:03:00 PM		
1401180-15A	1	6020A_W	SAMP	61551	1/29/2014 10:09:00 PM		
1401180-16A	1	6020A_W	SAMP	61551	1/29/2014 10:15:00 PM		
1401180-17A	1	6020A_W	SAMP	61551	1/29/2014 10:21:00 PM		
1401180-04A PDS	1	6020A_W	PDS	61551	1/29/2014 10:27:00 PM		
1401180-04A MS	1	6020A_W	MS	61551	1/29/2014 10:33:00 PM		
1401180-04A MSD	1	6020A_W	MSD	61551	1/29/2014 10:39:00 PM		
CCV4-140129	1	6020A_W	CCV	R70907	1/29/2014 10:45:00 PM		
LCVL4-140129	1	6020A_W	LCVL	R70907	1/29/2014 11:21:00 PM		
CCB4-140129	1	6020A_W	CCB	R70907	1/29/2014 11:33:00 PM		
1401180-19A	1	6020A_W	SAMP	61551	1/29/2014 11:39:00 PM		
1401180-20A	1	6020A_W	SAMP	61551	1/29/2014 11:45:00 PM		
1401180-21A	1	6020A_W	SAMP	61551	1/29/2014 11:52:00 PM		
1401180-22A	1	6020A_W	SAMP	61551	1/29/2014 11:58:00 PM		
1401180-23A	1	6020A_W	SAMP	61551	1/30/2014 12:04:00 AM		
1401180-24A	1	6020A_W	SAMP	61551	1/30/2014 12:10:00 AM		
1401180-26A	1	6020A_W	SAMP	61551	1/30/2014 12:16:00 AM		
CCV5-140129	1	6020A_W	CCV	R70907	1/30/2014 12:22:00 AM		
LCVL5-140129	1	6020A_W	LCVL	R70907	1/30/2014 12:58:00 AM		
CCB5-140129	1	6020A_W	CCB	R70907	1/30/2014 1:10:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140109	ICPMS CCV 200/5000 PPB		04/09/2014
MET-H2CAL-1401	ICPMS High Cal2 2000ppb std 8		04/09/2014
MET-HCAL-14010	ICPMS High Cal 500ppb/10ppm s		04/09/2014
MET-ICV-131108	ICPMS ICV 100 ppb		02/06/2014
MET-IS-131122	INTERNAL STANDARD 1 PPM		02/20/2014
MET-L2CAL-14010	ICPMS Low Cal2 1/20ppb std 2		04/09/2014
MET-LCAL-140109	ICPMS Low Cal 10/200ppb std 3		04/09/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		04/09/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		04/09/2014
MET-MCAL-14010	ICPMS Mid Cal 250/5000ppb std		04/09/2014
MET-PA-130501	ICPMS PA FACTOR SOLUTION		05/01/2014
MET-PDS-140117	250 PPM Naturals+Al+Fe PDS		04/17/2014
MET-PDS-140120-	10 PPM CUSTOM PDS SOLUTI		04/20/2014
MET-PDS-140120-	10 PPM Ag+Sb PDS		04/20/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		04/16/2014

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		CALBEG	Start of CALIB						
2	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
3	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
4	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
5	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
6	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
7	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
8	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		1/20 ppb STD.	CAL ICPMS_TW	Level 2				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		10/200 ppb STD.	CAL ICPMS_TW	Level 3				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		50/1000 ppb STD.	CAL ICPMS_TW	Level 4				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		100/2000 ppb STD.	CAL ICPMS_TW	Level 5				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		250/5000 ppb STD.	CAL ICPMS_TW	Level 6				
15	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		500/10000 ppb STD.	CAL ICPMS_TW	Level 7				
16	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		2000/25000 ppb STD.	CAL ICPMS_TW	Level 8				
17	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
18	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
19		Keyword		CALEND	End of CALIB						
20		Keyword		ICSBEG	Start of ICS						
21	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-140129	ICSAICPMS_TW	1.000				
22	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-140129	ICSBICPMS_TW	1.000				
23	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
24	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
25		Keyword		ICSEND	End of ICS						
26		Keyword		SMPLBEG	Start of SMPL						
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
31	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		1/20 ppb STD.	CAL ICPMS_TW	Level 2				
32	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		10/200 ppb STD.	CAL ICPMS_TW	Level 3				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		50/1000 ppb STD.	CAL ICPMS_TW	Level 4				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		100/2000 ppb STD.	CAL ICPMS_TW	Level 5				
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		250/5000 ppb STD.	CAL ICPMS_TW	Level 6				
36	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		500/10000 ppb STD.	CAL ICPMS_TW	Level 7				
37	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		2000/25000 ppb STD.	CAL ICPMS_TW	Level 8				
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-140129	ICSAICPMS_TW	1.000				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-140129	ICSBICPMS_TW	1.000				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-140129	ICV ICPMS_TW	1.000				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	2101		ICB1-140129	ICB ICPMS_TW	1.000				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		ILCVL-140129	LCVL6020A_W	1.000				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		ILCVL-140129	LCVL6020A_W	1.000				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1105		ICB1-140129	ICB ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
49	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2201		MB-61543	MBLK6020A_W	1.000				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2202		LCS-61543	LCS 6020A_W	1.000				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2203		LCSD-61543	LCSD6020A_W	1.000				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2204		1401171-08B	SAMP6020A_W	1.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2205		1401171-08B SD	SD 6020A_W	5.000				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2206		1401171-02B	SAMP6020A_W	1.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2207		1401171-03B	SAMP6020A_W	1.000				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2208		1401171-04B	SAMP6020A_W	1.000				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2209		1401171-05B	SAMP6020A_W	1.000				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2210		1401171-06B	SAMP6020A_W	1.000				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2211		1401171-07B	SAMP6020A_W	1.000				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2212		1401171-10B	SAMP6020A_W	1.000				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2301		1401180-01A	SAMP6020A_W	1.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2302		1401180-02A	SAMP6020A_W	1.000				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2303		1401171-08B PDS	PDS 6020A_W	1.000				
65	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2304		1401171-08B MS	MS 6020A_W	1.000				
66	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2305		1401171-08B MSD	MSD 6020A_W	1.000				
67	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-140129	CCV ICPMS_TW	1.000				
68	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	2112		CCV1-140129	CCV ICPMS_TW	1.000				
69	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB1-140129	CCB ICPMS_TW	1.000				
70	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1306		CCV1-140129	CCV ICPMS_TW	1.000				
71	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB1-140129	CCB ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
72	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL1-140129	LCVL6020A_W	1.000				
73	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL1-140129	LCVL6020A_W	1.000				
74	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB1-140129	CCB ICPMS_TW	1.000				
75	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-140129	CCB ICPMS_TW	1.000				
76	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2306		1401180-03A	SAMP6020A_W	1.000				
77	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2307		1401180-05A	SAMP6020A_W	1.000				
78	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2308		1401180-06A	SAMP6020A_W	1.000				
79	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2309		1401180-07A	SAMP6020A_W	1.000				
80	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2310		1401180-08A	SAMP6020A_W	1.000				
81	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2311		1401180-09A	SAMP6020A_W	1.000				
82	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2312		1401180-10A	SAMP6020A_W	1.000				
83	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2206		1401171-02B	SAMP6020A_W	5.000				
84	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2212		1401171-10B	SAMP6020A_W	5.000				
85	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-140129	CCV ICPMS_TW	1.000				
86	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	2112		CCV2-140129	CCV ICPMS_TW	1.000				
87	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1306		CCV2-140129	CCV ICPMS_TW	1.000				
88	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB2-140129	CCB ICPMS_TW	1.000				
89	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB2-140129	CCB ICPMS_TW	1.000				
90	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL2-140129	LCVL6020A_W	1.000				
91	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL2-140129	LCVL6020A_W	1.000				
92	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB2-140129	CCB ICPMS_TW	1.000				
93	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-140129	CCB ICPMS_TW	1.000				
94	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	2401		MB-61561	MBLK6020A_S	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
95	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2402		LCS-61561	LCS 6020A_S	1.000				
96	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2403		LCSD-61561	LCSD6020A_S	1.000				
97	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
98	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2404		1401211-01C	SAMP6020A_S	1.000				
99	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2405		1401211-01C MS	MS_6020A_S	1.000				
100	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2406		1401194-02A	SAMP6020A_S	1.000				
101	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2407		1401194-02A	SAMP6020A_S	1.000				
102	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2408		1401194-02A	SAMP6020A_S	1.000				
103	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2409		1401211-01C PDS	PDS 6020A_S	1.000				
104	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2410		1401211-01C MS	MS_6020A_S	1.000				
105	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2411		1401211-01C MSD	MSD 6020A_S	1.000				
106	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-140129	CCV ICPMS_TW	1.000				
107	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	2112		CCV3-140129	CCV ICPMS_TW	1.000				
108	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1306		CCV3-140129	CCV ICPMS_TW	1.000				
109	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB3-140129	CCB ICPMS_TW	1.000				
110	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB3-140129	CCB ICPMS_TW	1.000				
111	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL3-140129	LCVL6020A_W	1.000				
112	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL3-140129	LCVL6020A_W	1.000				
113	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB3-140129	CCB ICPMS_TW	1.000				
114	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-140129	CCB ICPMS_TW	1.000				
115	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	3101		MB-61551	MBLK6020A_W	1.000				
116	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	3102		LCS-61551	LCS 6020A_W	1.000				
117	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	3103		LCSD-61551	LCSD6020A_W	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
118	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
119	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3104		1401180-04A	SAMP6020A_W	1.000				
120	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3105		1401180-04A SD	SD 6020A_W	5.000				
121	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3106		1401180-18A	SAMP6020A_W	1.000				
122	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3107		1401180-25A	SAMP6020A_W	1.000				
123	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3108		1401180-11A	SAMP6020A_W	1.000				
124	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3109		1401180-12A	SAMP6020A_W	1.000				
125	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3110		1401180-13A	SAMP6020A_W	1.000				
126	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3111		1401180-14A	SAMP6020A_W	1.000				
127	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3112		1401180-15A	SAMP6020A_W	1.000				
128	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3201		1401180-16A	SAMP6020A_W	1.000				
129	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3202		1401180-17A	SAMP6020A_W	1.000				
130	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3203		1401180-04A PDS	PDS 6020A_W	1.000				
131	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	3204		1401180-04A MS	MS 6020A_W	1.000				
132	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	3205		1401180-04A MSD	MSD 6020A_W	1.000				
133	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-140129	CCV ICPMS_TW	1.000				
134	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	2112		CCV4-140129	CCV ICPMS_TW	1.000				
135	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1306		CCV4-140129	CCV ICPMS_TW	1.000				
136	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB4-140129	CCB ICPMS_TW	1.000				
137	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB4-140129	CCB ICPMS_TW	1.000				
138	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL4-140129	LCVL6020A_W	1.000				
139	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL4-140129	LCVL6020A_W	1.000				
140	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB4-140129	CCB ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
141	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB4-140129	CCB ICPMS_TW	1.000				
142	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3206		1401180-19A	SAMP6020A_W	1.000				
143	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3207		1401180-20A	SAMP6020A_W	1.000				
144	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3208		1401180-21A	SAMP6020A_W	1.000				
145	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3209		1401180-22A	SAMP6020A_W	1.000				
146	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3210		1401180-23A	SAMP6020A_W	1.000				
147	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3211		1401180-24A	SAMP6020A_W	1.000				
148	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3212		1401180-26A	SAMP6020A_W	1.000				
149	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV5-140129	CCV ICPMS_TW	1.000				
150	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	2112		CCV5-140129	CCV ICPMS_TW	1.000				
151	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1306		CCV5-140129	CCV ICPMS_TW	1.000				
152	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB5-140129	CCB ICPMS_TW	1.000				
153	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB5-140129	CCB ICPMS_TW	1.000				
154	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL5-140129	LCVL6020A_W	1.000				
155	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL5-140129	LCVL6020A_W	1.000				
156	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB5-140129	CCB ICPMS_TW	1.000				
157	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-140129	CCB ICPMS_TW	1.000				
158		Keyword		StandBy							
159		Keyword		SMPLEND	End of SMPL						
160		Keyword		End	End of Sequence						
161		Keyword		CCVBEG	Start of CCV						
162		Keyword		CCVEND	End of CCV						
163		Keyword		BLKBEG	Start of BLANK						
164		Keyword		BLKEND	End of BLANK						
165		Keyword		ERRBEG	Start of ERRTERM						
166		Keyword		ERREND	End of ERRTERM						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/28/2014 12:07:08 PM**
Digestion: **Start: 1/28/2014 1:05:00 PM / Stop: 1/28/2014 5:20:00 PM**
Prep End Date: **1/28/2014 5:25:12 PM**

Prep Batch **61543** Prep Code: **3005A** Technician: **James McNeely**

Prep Factor Units: **mL/mL**

Equipment List
Thermometer #69
Hot Block #2

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1401171-02B	Aqueous		50	50	1.000	1 of 1
1401171-03B	Aqueous		50	50	1.000	1 of 1
1401171-04B	Aqueous		50	50	1.000	1 of 1
1401171-05B	Aqueous		50	50	1.000	1 of 1
1401171-06B	Aqueous		50	50	1.000	1 of 1
1401171-07B	Aqueous		50	50	1.000	1 of 1
1401171-08B	Aqueous		50	50	1.000	1 of 1
1401171-08B MS	Aqueous		50	50	1.000	of
1401171-08B MSD	Aqueous		50	50	1.000	of
1401171-08B PDS	Aqueous		50	50	1.000	of
1401171-08B SD	Aqueous		50	50	1.000	of
1401171-10B	Aqueous		50	50	1.000	1 of 1
1401180-01A	Aqueous		50	50	1.000	1 of 1
1401180-02A	Aqueous		50	50	1.000	1 of 1
1401180-03A	Aqueous		50	50	1.000	1 of 1
1401180-05A	Aqueous		50	50	1.000	1 of 1
1401180-06A	Aqueous		50	50	1.000	1 of 1
1401180-07A	Aqueous		50	50	1.000	1 of 1
1401180-08A	Equip Blank		50	50	1.000	1 of 1
1401180-09A	Aqueous		50	50	1.000	1 of 1
1401180-10A	Aqueous		50	50	1.000	1 of 1
LCS-61543	Aqueous		50	50	1.000	of
LCSD-61543	Aqueous		50	50	1.000	of
MB-61543	Aqueous		50	50	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
7179	pH paper 0-3	4	paper	05/14/2023
7571	Nitric Acid (Trace Metal Grade)	1	ml	06/06/2015
7646	Digestion Vessels	69	ml	06/21/2014
7683	HCL (Trace Grade)	1	ml	08/09/2016

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-130710-1	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	08/08/2014
MET-130710-2	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	08/08/2014
MET-SPIKE-140103	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	02/03/2014
MET-SPIKE-140127-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	02/27/2014
MET-SPIKE-140127-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MS	0.2	02/27/2014

REVIEWED
By Angie O'Donnell at 12:02:06 PM, 1/30/2014

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/29/2014 8:30:00 AM**
Digestion: **Start: 1/29/2014 9:24:00 AM / Stop: 1/29/2014 1:50:00 PM**
Prep End Date: **1/29/2014 1:54:00 PM**

Prep Batch **61551** Prep Code: **3005A** Technician: **James McNeely**

Prep Factor Units: **mL/mL**

Equipment List
Thermometer #69
Hot Block #2

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1401180-04A	Aqueous		50	50	1.000	1 of 3
1401180-04A MS	Aqueous		50	50	1.000	of
1401180-04A MSD	Aqueous		50	50	1.000	of
1401180-04A PDS	Aqueous		50	50	1.000	of
1401180-04A SD	Aqueous		50	50	1.000	of
1401180-11A	Aqueous		50	50	1.000	1 of 1
1401180-12A	Aqueous		50	50	1.000	1 of 1
1401180-13A	Aqueous		50	50	1.000	1 of 1
1401180-14A	Aqueous		50	50	1.000	1 of 1
1401180-15A	Aqueous		50	50	1.000	1 of 1
1401180-16A	Aqueous		50	50	1.000	1 of 1
1401180-17A	Aqueous		50	50	1.000	1 of 1
1401180-18A	Equip Blank		50	50	1.000	1 of 1
1401180-19A	Aqueous		50	50	1.000	1 of 1
1401180-20A	Aqueous		50	50	1.000	1 of 1
1401180-21A	Aqueous		50	50	1.000	1 of 1
1401180-22A	Aqueous		50	50	1.000	1 of 1
1401180-23A	Aqueous		50	50	1.000	1 of 1
1401180-24A	Aqueous		50	50	1.000	1 of 1
1401180-25A	Equip Blank		50	50	1.000	1 of 1
1401180-26A	Aqueous		50	50	1.000	1 of 1
LCS-61551	Aqueous		50	50	1.000	of
LCSD-61551	Aqueous		50	50	1.000	of
MB-61551	Aqueous		50	50	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
7571	Nitric Acid (Trace Metal Grade)	1	ml	06/06/2015
7646	Digestion Vessels	69	ml	06/21/2014
7683	HCL (Trace Grade)	1	ml	08/09/2016

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-130710-1	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	08/08/2014
MET-130710-2	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	08/08/2014
MET-SPIKE-140103	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	02/03/2014
MET-SPIKE-140127-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	02/27/2014
MET-SPIKE-140127-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MS	0.2	02/27/2014

REVIEWED
By Angie O'Donnell at 12:03:17 PM, 1/30/2014

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/29/2014 8:30:00 AM**
Digestion: **Start: 1/29/2014 9:24:00 AM / Stop: 1/29/2014 1:50:00 PM**
Prep End Date: **1/29/2014 1:54:00 PM**

Prep Batch **61551** Prep Code: **3005A** Technician: **James McNeely**

Prep Factor Units: **mL/mL**

Equipment List
Thermometer #69
Hot Block #2

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1401180-04A	Aqueous		50	50	1.000	1 of 3
1401180-04A MS	Aqueous		50	50	1.000	of
1401180-04A MSD	Aqueous		50	50	1.000	of
1401180-04A PDS	Aqueous		50	50	1.000	of
1401180-04A SD	Aqueous		50	50	1.000	of
1401180-11A	Aqueous		50	50	1.000	1 of 1
1401180-12A	Aqueous		50	50	1.000	1 of 1
1401180-13A	Aqueous		50	50	1.000	1 of 1
1401180-14A	Aqueous		50	50	1.000	1 of 1
1401180-15A	Aqueous		50	50	1.000	1 of 1
1401180-16A	Aqueous		50	50	1.000	1 of 1
1401180-17A	Aqueous		50	50	1.000	1 of 1
1401180-18A	Equip Blank		50	50	1.000	1 of 1
1401180-19A	Aqueous		50	50	1.000	1 of 1
1401180-20A	Aqueous		50	50	1.000	1 of 1
1401180-21A	Aqueous		50	50	1.000	1 of 1
1401180-22A	Aqueous		50	50	1.000	1 of 1
1401180-23A	Aqueous		50	50	1.000	1 of 1
1401180-24A	Aqueous		50	50	1.000	1 of 1
1401180-25A	Equip Blank		50	50	1.000	1 of 1
1401180-26A	Aqueous		50	50	1.000	1 of 1
LCS-61551	Aqueous		50	50	1.000	of
LCSD-61551	Aqueous		50	50	1.000	of
MB-61551	Aqueous		50	50	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
7571	Nitric Acid (Trace Metal Grade)	1	ml	06/06/2015
7646	Digestion Vessels	69	ml	06/21/2014
7683	HCL (Trace Grade)	1	ml	08/09/2016

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-130710-1	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	08/08/2014
MET-130710-2	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	08/08/2014
MET-SPIKE-140103	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	02/03/2014
MET-SPIKE-140127-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	02/27/2014
MET-SPIKE-140127-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MS	0.2	02/27/2014

REVIEWED
By Angie O'Donnell at 12:03:17 PM, 1/30/2014

Calibration Summary Report

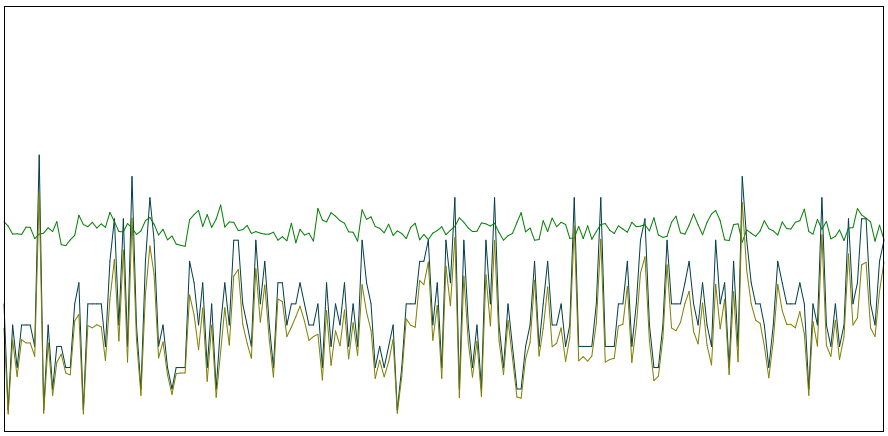
Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3Fe.C
Last Update: Jan 29 2014 01:14 pm
Cal Type: Y=aX+[blank]

Standard	Date Acquired	File
BLANK STD 1	Jan 29 2014 12:22 pm	c:\icpchem\1\data\14a29j01.b\025calb.d\
1/20 ppb STD.	Jan 29 2014 12:28 pm	c:\icpchem\1\data\14a29j01.b\026cals.d\
10/200 ppb STD.	Jan 29 2014 12:34 pm	c:\icpchem\1\data\14a29j01.b\027cals.d\
50/1000 ppb STD.	Jan 29 2014 12:40 pm	c:\icpchem\1\data\14a29j01.b\028cals.d\
100/2000 ppb STD.	Jan 29 2014 12:46 pm	c:\icpchem\1\data\14a29j01.b\029cals.d\
250/5000 ppb STD.	Jan 29 2014 12:52 pm	c:\icpchem\1\data\14a29j01.b\030cals.d\

Element Name	Corr Coef	Coef A	Coef B	Lvl 2	Lvl 6	Lvl 7	L7 %R	Lvl 8	L8 %R
Li	0.5986	0.0002429	11.27	93.04	1,416	1221		1599	
Be	0.9999	0.07156	0.001619	1.17	273	513	103%	1,993	100%
B	1.0000	0.06385	0.229	1.27	252	509	102%	1,997	100%
Na	0.9999	0.2731	4.969	52.52	5,102	10,340	103%	24,840	99%
Mg	1.0000	0.1334	0.5288	47.21	4,990	9,829	98%	25,060	100%
Al	1.0000	0.0398	0.1447	46.34	5,057	9,952	100%	--------	######
K	1.0000	0.0701	4.691	50.27	5,026	9,973	100%	25,000	100%
Ca	0.9999	0.008378	0.09111	26.65	5,223	10,260	103%	24,840	99%
Ti	1.0000	0.02825	0.0008964	2.05	249	493	99%	2,002	100%
V	0.9999	1.126	0.1644	1.39	246	481	96%	2,005	100%
Cr	1.0000	1.467	0.08254	1.40	249	489	98%	2,003	100%
Mn	1.0000	0.6415	0.02207	1.38	256	501	100%	1,999	100%
Fe	0.9998	1.853	4.92	46.49	5,121	9,900	99%	--------	######
Co	1.0000	4.196	0.03746	1.41	252	497	99%	2,000	100%
Ni	1.0000	1.161	0.05039	1.41	256	503	101%	1,998	100%
Cu	1.0000	3.318	1.419	1.46	254	497	99%	2,000	100%
Zn	1.0000	0.3481	0.2742	1.51	260	507	101%	1,996	100%
As	1.0000	0.1844	0.01951	1.32	253	497	99%	2,000	100%
Se	1.0000	0.01167	0.009827	1.37	257	496	99%	2,000	100%
Sr	1.0000	0.3045	0.01253	1.07	261	495	99%	2,000	100%
Mo	0.9999	0.05336	0.02158	1.04	254	497	99%	--------	######
Ag	0.9999	0.1417	0.001651	1.10	253	498	100%	--------	######
Cd	1.0000	0.02859	0.0003194	1.09	249	484	97%	2,004	100%
Sn	1.0000	0.08534	0.02092	1.05	251	505	101%	1,998	100%
Sb	1.0000	0.09892	0.004044	1.04	249	500	100%	--------	######
Ba	0.9999	0.04253	0.001337	1.02	245	477	95%	2,007	100%
Tl	1.0000	0.3126	0.01309	1.07	257	505	101%	1,998	100%
Pb	1.0000	0.4297	0.01571	1.09	253	503	101%	1,999	100%

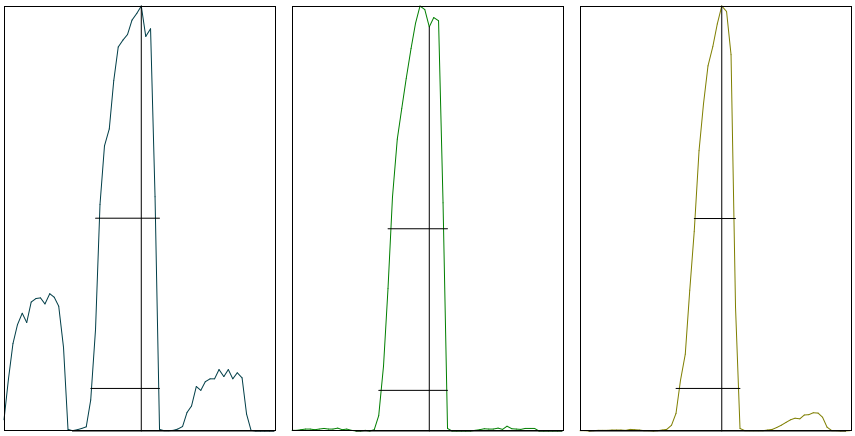
Tune Report

Tune File : He.U
Comment :



Integration Time: 0.1000 sec
Sampling Period: 0.2000 sec
n: 200
Oxide: 156/140 0.245%
Doubly Charged: 70/140 3.294%

m/z	Range	Count	Mean	RSD%	Background
51	20	9.0	5.8	41.27	0.10
59	5,000	2257.0	2388.9	4.12	0.10
51/59	1	0.399%	0.241%	41.17	



m/z:	59	89	205
Height:	2,498	1,121	6,159
Axis:	59.05	89.05	205.10
W-50%:	0.70	0.65	0.45
W-10%:	0.7500	0.7500	0.700

Integration Time: 0.1000 sec
Acquisition Time: 22.5600 sec

Y axis : Linear

Generated : Jan 29, 2014 09:40:14
Printed : Jan 29, 2014 09:40:16

Tune Report

Tune File : He.U
Comment :

Tuning Parameters

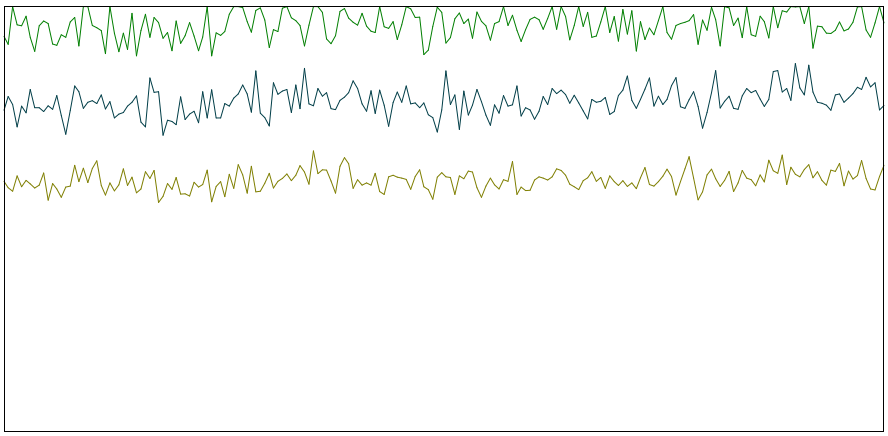
===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1550	W	Extract 1	:	0	V	AMU Gain	:	121	
RF Matching	:	1.7	V	Extract 2	:	-125	V	AMU Offset	:	121	
Smpl Depth	:	10	mm	Omega Bias-ce	:	-22	V	Axis Gain	:	0.9993	
Torch-H	:	0	mm	Omega Lens-ce	:	2	V	Axis Offset	:	-0.06	
Torch-V	:	1.2	mm	Cell Entrance	:	-40	V	QP Bias	:	-16	V
Carrier Gas	:	1.2	L/min	QP Focus	:	-9	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	200	V	Pulse HV	:	1020	V
S/C Temp	:	2	degC	OctP Bias	:	-18	V				

===Reaction Cell===

Reaction Mode	:	ON								
H2 Gas	:	0	mL/min	He Gas	:	4.3	mL/min	Optional Gas	:	--- %

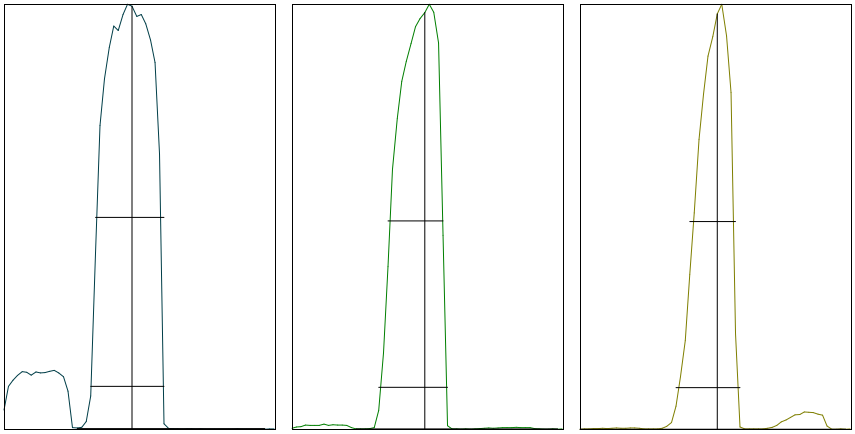
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.8200 sec	
n:	200	
Oxide:	156/140	0.899%
Doubly Charged:	70/140	4.416%

m/z	Range	Count	Mean	RSD%	Background
7	20,000	15334.0	15533.2	4.09	3.30
89	20,000	19224.0	19165.3	3.61	3.80
205	20,000	12530.0	11826.8	3.85	8.00
156/140	2	0.985%	0.910%	9.33	
70/140	5	4.059%	4.434%	5.93	
23	100,000	50250.0	47728.8	3.96	2.80
80	1,000,000	614056.0	615544.5	0.65	3.40



m/z:	7	89	205
Height:	15,999	19,591	12,812
Axis:	6.95	89.00	205.05
W-50%:	0.75	0.60	0.50
W-10%:	0.800	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.7600 sec

Y axis : Linear

Generated : Jan 29, 2014 09:35:55
Printed : Jan 29, 2014 09:35:57

Tune Report

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1550	W	Extract 1	:	0	V	AMU Gain	:	121	
RF Matching	:	1.7	V	Extract 2	:	-125	V	AMU Offset	:	121	
Smpl Depth	:	10	mm	Omega Bias-ce	:	-22	V	Axis Gain	:	0.9993	
Torch-H	:	0	mm	Omega Lens-ce	:	2	V	Axis Offset	:	-0.06	
Torch-V	:	1.2	mm	Cell Entrance	:	-40	V	QP Bias	:	-4	V
Carrier Gas	:	1.2	L/min	QP Focus	:	2	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	200	V	Pulse HV	:	1020	V
S/C Temp	:	2	degC	OctP Bias	:	-7	V				

===Reaction Cell===

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

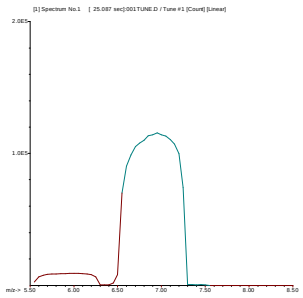
Generated : Jan 29, 2014 09:35:55
Printed : Jan 29, 2014 09:36:00

6020 QC Tune Report

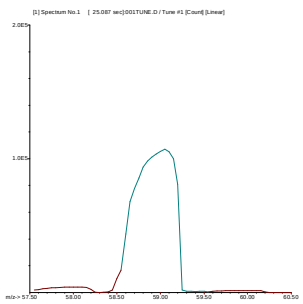
Data File: C:\ICPCHEM\1\DATA\14A29j00.B\001TUNE.D
Date Acquired: Jan 29 2014 09:47 am
Acq. Method: TN6020.M
Operator: SW
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

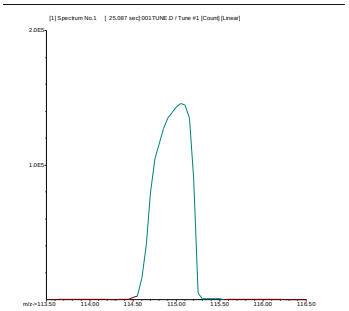
Element	Actual	Required	Flag
7 Li	1.02	5.00	
59 Co	2.71	5.00	
115 In	2.50	5.00	
205 Tl	1.50	5.00	



7 Li
Mass Calib.
Actual: 6.95
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.70
Required: 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.00
Required: 58.90 - 59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:



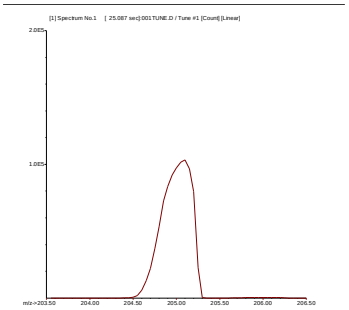
115 In

Mass Calib.

Actual:	115.05	
Required:	114.90 -	115.10
Flag:		

Peak Width

Actual:	0.55
Required:	0.90
Flag:	



205 Tl

Mass Calib.

Actual:	205.05	
Required:	204.90 -	205.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	

P/A Factor Tuning Report

Acquired:Jan 29 2014 09:43 am

Mass[amu]	Element	P/A Factor
6	Li	0.069301
23	Na	0.084091
24	Mg	0.088269
27	Al	0.091336
39	K	0.091043
44	Ca	Sensitivity too low
45	Sc	0.092213
47	Ti	Sensitivity too low
51	V	0.094660
52	Cr	0.097365
55	Mn	0.099088
59	Co	0.102603
60	Ni	0.104376
63	Cu	0.106421
66	Zn	0.106245
72	Ge	0.104986
75	As	0.103884
78	Se	Sensitivity too low
88	Sr	0.105316
95	Mo	0.103341
106	(Cd)	0.110359
107	Ag	Sensitivity too low
108	(Cd)	0.110518
111	Cd	0.111617
115	In	0.111593
118	Sn	0.111062
121	Sb	0.110929
137	Ba	Sensitivity too low
205	Tl	0.120636
206	(Pb)	0.120470
207	(Pb)	0.120545
208	Pb	0.120872
209	Bi	0.120593
238		0.120239

===Detector Parameters===
Discriminator: 8.0 mV
Analog HV: 1750 V
Pulse HV: 1020 V

Calibration Blank QC Report

Acq. Method: DHL_3Fe.M Sample Name: BLANK STD 1
Operator: SW Instrument: ICPMS3
Last Cal. Update: Jan 29 2014 11:25 am
Date Acquired: Jan 29 2014 12:22 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	4008511.00	A	70100.00	1.75
7	Li	2	45	278696.31	P	3521.00	1.26
9	Be	2	45	40.00	P	5.77	14.43
11	B	2	45	5662.60	P	307.50	5.43
23	Na	1	45	2484.80	P	73.44	2.96
24	Mg	1	45	264.46	P	24.57	9.29
27	Al	1	45	72.45	P	12.02	16.59
39	K	1	45	2346.99	P	151.70	6.46
44	Ca	2	45	2253.63	P	133.30	5.91
45	Sc	1	---	100020.00	P	1777.00	1.78
45	Sc	2	---	4946391.00	A	34500.00	0.70
47	Ti	1	45	0.44	P	0.77	173.20
51	V	1	45	82.22	P	13.42	16.32
51	V	2	---		P		
52	Cr	1	45	41.33	P	11.62	28.11
55	Mn	1	45	11.11	P	6.58	59.19
56	Fe	1	72	1519.72	P	288.40	18.98
59	Co	1	72	11.56	P	2.78	24.02
60	Ni	1	72	15.56	P	5.39	34.64
60	Ni	2	---		P		
63	Cu	1	72	438.24	P	41.34	9.43
63	Cu	2	---		P		
66	Zn	1	72	84.89	P	15.57	18.34
66	Zn	2	---		P		
72	Ge	1	---	61823.22	P	781.10	1.26
72	Ge	2	---		P		
75	As	1	72	6.04	P	0.90	14.99
78	Se	1	72	3.04	P	0.13	4.22
88	Sr	2	###	354.47	P	47.42	13.38
95	Mo	2	###	611.15	P	35.33	5.78
107	Ag	2	###	46.67	P	15.28	32.74
111	Cd	2	###	9.15	P	12.81	139.98
115	In	2	---	5661857.00	A	94770.00	1.67
118	Sn	2	###	592.26	P	53.89	9.10
121	Sb	2	###	114.45	P	20.37	17.80
137	Ba	2	###	37.78	P	5.09	13.48
205	Tl	2	###	297.79	P	12.62	4.24
208	Pb	2	###	357.80	P	17.11	4.78
209	Bi	2	---	4553307.00	A	85100.00	1.87

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 1/20 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jan 29 2014 12:28 pm
Last Cal. Update: Jan 29 2014 12:26 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4037165.00	A	43770.00	1.08	
7	Li	2	45	280065.50	P	4453.00	1.59	
9	Be	2	45	2118.04	P	36.73	1.73	
11	B	2	45	7694.88	P	250.00	3.25	
23	Na	1	45	9630.02	P	4725.00	49.07	
24	Mg	1	45	3402.00	P	2189.00	64.34	
27	Al	1	45	990.95	P	658.60	66.46	
39	K	1	45	4102.66	P	1260.00	30.71	
44	Ca	2	45	7794.98	P	507.40	6.51	
45	Sc	1	---	100103.60	P	1262.00	1.26	
45	Sc	2	---	4960740.00	A	57130.00	1.15	
47	Ti	1	45	29.33	P	16.38	55.84	
51	V	1	45	864.97	P	236.20	27.31	
51	V	2	---		P			
52	Cr	1	45	1070.78	P	244.60	22.84	
55	Mn	1	45	452.47	P	145.20	32.09	
56	Fe	1	72	28208.92	P	18990.00	67.32	
59	Co	1	72	1847.01	P	562.80	30.47	
60	Ni	1	72	523.59	P	138.10	26.38	
60	Ni	2	---		P			
63	Cu	1	72	1945.64	P	411.00	21.12	
63	Cu	2	---		P			
66	Zn	1	72	248.45	P	41.11	16.55	
66	Zn	2	---		P			
72	Ge	1	---	62032.49	P	297.50	0.48	
72	Ge	2	---		P			
75	As	1	72	81.44	P	22.19	27.25	
78	Se	1	72	8.00	P	2.12	26.46	
88	Sr	2	115	9719.87	P	153.50	1.58	
95	Mo	2	115	2209.17	P	98.30	4.45	
107	Ag	2	115	4499.91	P	243.90	5.42	
111	Cd	2	115	903.64	P	74.21	8.21	
115	In	2	---	5731697.00	A	114900.00	2.00	
118	Sn	2	115	3160.55	P	109.70	3.47	
121	Sb	2	115	3067.19	P	115.90	3.78	
137	Ba	2	115	1281.24	P	24.12	1.88	
205	Tl	2	209	7936.43	P	239.80	3.02	
208	Pb	2	209	11045.95	P	133.20	1.21	
209	Bi	2	---	4584671.00	A	51920.00	1.13	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4037165.00	1.08	4008511.30	100.7	70 - 120	
45	Sc	1	100103.60	1.26	100020.03	100.1	70 - 120	
45	Sc	2	4960740.50	1.15	4946391.00	100.3	70 - 120	
72	Ge	1	62032.50	0.48	61823.22	100.3	70 - 120	
115	In	2	5731697.00	2.00	5661857.00	101.2	70 - 120	
209	Bi	2	4584671.00	1.13	4553307.50	100.7	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 10/200 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jan 29 2014 12:34 pm
Last Cal. Update: Jan 29 2014 12:32 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4024572.00	A	72530.00	1.80	
7	Li	2	45	280189.91	P	3516.00	1.25	
9	Be	2	45	19914.13	P	95.14	0.48	
11	B	2	45	21337.77	P	394.30	1.85	
23	Na	1	45	31688.83	P	660.30	2.08	
24	Mg	1	45	14345.36	P	75.80	0.53	
27	Al	1	45	4217.22	P	128.00	3.04	
39	K	1	45	9842.05	P	311.90	3.17	
44	Ca	2	45	47045.75	P	649.20	1.38	
45	Sc	1	---	98626.75	P	1836.00	1.86	
45	Sc	2	---	4873514.00	A	36390.00	0.75	
47	Ti	1	45	172.89	P	15.40	8.91	
51	V	1	45	5838.80	P	176.90	3.03	
51	V	2	---		P			
52	Cr	1	45	7838.60	P	258.00	3.29	
55	Mn	1	45	3509.88	P	47.19	1.34	
56	Fe	1	72	122728.40	P	2636.00	2.15	
59	Co	1	72	13627.70	P	363.20	2.67	
60	Ni	1	72	4009.16	P	105.30	2.63	
60	Ni	2	---		P			
63	Cu	1	72	11553.58	P	401.70	3.48	
63	Cu	2	---		P			
66	Zn	1	72	1274.76	P	58.90	4.62	
66	Zn	2	---		P			
72	Ge	1	---	60792.47	P	937.00	1.54	
72	Ge	2	---		P			
75	As	1	72	618.68	P	16.26	2.63	
78	Se	1	72	41.74	P	2.09	5.01	
88	Sr	2	115	90316.48	P	320.90	0.36	
95	Mo	2	115	15882.18	P	89.62	0.56	
107	Ag	2	115	42090.58	P	315.10	0.75	
111	Cd	2	115	8420.27	P	206.40	2.45	
115	In	2	---	5539256.00	A	31680.00	0.57	
118	Sn	2	115	25204.19	P	618.10	2.45	
121	Sb	2	115	28610.82	P	339.20	1.19	
137	Ba	2	115	12003.24	P	531.00	4.42	
205	Tl	2	209	72775.90	P	392.70	0.54	
208	Pb	2	209	100615.50	P	1133.00	1.13	
209	Bi	2	---	4478814.00	A	74500.00	1.66	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4024571.50	1.80	4008511.30	100.4	70 - 120	
45	Sc	1	98626.75	1.86	100020.03	98.6	70 - 120	
45	Sc	2	4873513.50	0.75	4946391.00	98.5	70 - 120	
72	Ge	1	60792.47	1.54	61823.22	98.3	70 - 120	
115	In	2	5539256.00	0.57	5661857.00	97.8	70 - 120	
209	Bi	2	4478813.50	1.66	4553307.50	98.4	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 50/1000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jan 29 2014 12:40 pm
Last Cal. Update: Jan 29 2014 12:38 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	3982059.00	A	58740.00	1.48	
7	Li	2	45	276309.41	P	2510.00	0.91	
9	Be	2	45	98122.28	P	1028.00	1.05	
11	B	2	45	84923.00	P	1989.00	2.34	
23	Na	1	45	144148.30	P	1576.00	1.09	
24	Mg	1	45	68637.34	P	1212.00	1.77	
27	Al	1	45	20754.29	P	879.10	4.24	
39	K	1	45	38292.13	P	829.70	2.17	
44	Ca	2	45	217445.00	P	592.70	0.27	
45	Sc	1	---	97467.11	P	1705.00	1.75	
45	Sc	2	---	4795279.00	A	39920.00	0.83	
47	Ti	1	45	743.15	P	48.91	6.58	
51	V	1	45	28507.67	P	637.20	2.24	
51	V	2	---		P			
52	Cr	1	45	37793.86	P	1034.00	2.74	
55	Mn	1	45	16744.89	P	390.20	2.33	
56	Fe	1	72	599915.69	P	17390.00	2.90	
59	Co	1	72	67684.68	P	1176.00	1.74	
60	Ni	1	72	19204.96	P	481.00	2.50	
60	Ni	2	---		P			
63	Cu	1	72	54941.21	P	1273.00	2.32	
63	Cu	2	---		P			
66	Zn	1	72	5954.43	P	262.80	4.41	
66	Zn	2	---		P			
72	Ge	1	---	61020.90	P	1343.00	2.20	
72	Ge	2	---		P			
75	As	1	72	3006.26	P	52.24	1.74	
78	Se	1	72	189.93	P	3.30	1.74	
88	Sr	2	115	441367.69	P	3742.00	0.85	
95	Mo	2	115	77245.38	P	533.50	0.69	
107	Ag	2	115	204024.30	P	887.20	0.43	
111	Cd	2	115	41013.99	P	426.70	1.04	
115	In	2	---	5456175.00	A	18280.00	0.34	
118	Sn	2	115	121758.30	P	1493.00	1.23	
121	Sb	2	115	141206.30	P	726.20	0.51	
137	Ba	2	115	58805.59	P	374.30	0.64	
205	Tl	2	209	353526.91	P	3313.00	0.94	
208	Pb	2	209	487675.81	P	5571.00	1.14	
209	Bi	2	---	4387417.00	A	34560.00	0.79	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3982059.00	1.48	4008511.30	99.3	70 - 120	
45	Sc	1	97467.12	1.75	100020.03	97.4	70 - 120	
45	Sc	2	4795279.50	0.83	4946391.00	96.9	70 - 120	
72	Ge	1	61020.90	2.20	61823.22	98.7	70 - 120	
115	In	2	5456175.50	0.34	5661857.00	96.4	70 - 120	
209	Bi	2	4387417.50	0.79	4553307.50	96.4	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 100/2000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jan 29 2014 12:46 pm
Last Cal. Update: Jan 29 2014 12:44 pm

QC&ISTD Elements

Element			CPS Mean		SD	RSD(%)	Flag
6 Li	2	---	4049355.00	A	11850.00	0.29	
7 Li	2	45	280549.41	P	855.80	0.31	
9 Be	2	45	196652.70	P	1109.00	0.56	
11 B	2	45	168018.59	P	2390.00	1.42	
23 Na	1	45	285207.41	P	3589.00	1.26	
24 Mg	1	45	136095.09	P	2192.00	1.61	
27 Al	1	45	40958.83	P	878.50	2.14	
39 K	1	45	73997.36	P	730.90	0.99	
44 Ca	2	45	433618.09	P	3085.00	0.71	
45 Sc	1	---	99707.93	P	818.00	0.82	
45 Sc	2	---	4874402.00	A	27170.00	0.56	
47 Ti	1	45	1444.11	P	40.86	2.83	
51 V	1	45	57075.12	P	1120.00	1.96	
51 V	2	---		P			
52 Cr	1	45	75134.31	P	1962.00	2.61	
55 Mn	1	45	33474.87	P	578.60	1.73	
56 Fe	1	72	1233868.00	A	25080.00	2.03	
59 Co	1	72	134124.00	P	1107.00	0.83	
60 Ni	1	72	37951.95	P	747.40	1.97	
60 Ni	2	---		P			
63 Cu	1	72	107358.30	P	1089.00	1.01	
63 Cu	2	---		P			
66 Zn	1	72	11713.32	P	219.90	1.88	
66 Zn	2	---		P			
72 Ge	1	---	61362.75	P	416.00	0.68	
72 Ge	2	---		P			
75 As	1	72	5889.16	P	61.95	1.05	
78 Se	1	72	377.41	P	15.36	4.07	
88 Sr	2	115	883902.38	P	6363.00	0.72	
95 Mo	2	115	154158.00	P	576.20	0.37	
107 Ag	2	115	406745.50	P	3134.00	0.77	
111 Cd	2	115	81493.70	P	877.60	1.08	
115 In	2	---	5534424.00	A	33450.00	0.60	
118 Sn	2	115	243020.41	P	603.10	0.25	
121 Sb	2	115	279777.50	P	732.10	0.26	
137 Ba	2	115	117151.00	P	1056.00	0.90	
205 Tl	2	209	705846.81	P	2342.00	0.33	
208 Pb	2	209	976843.69	P	2492.00	0.26	
209 Bi	2	---	4426103.00	A	45210.00	1.02	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2		4049355.00	0.29	4008511.30	101.0	70 - 120	
45 Sc	1		99707.93	0.82	100020.03	99.7	70 - 120	
45 Sc	2		4874402.50	0.56	4946391.00	98.5	70 - 120	
72 Ge	1		61362.75	0.68	61823.22	99.3	70 - 120	
115 In	2		5534424.00	0.60	5661857.00	97.7	70 - 120	
209 Bi	2		4426103.50	1.02	4553307.50	97.2	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 250/5000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jan 29 2014 12:52 pm
Last Cal. Update: Jan 29 2014 12:50 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4058082.00	A	12170.00	0.30	
7	Li	2	45	284675.50	P	3991.00	1.40	
9	Be	2	45	478120.00	P	6577.00	1.38	
11	B	2	45	399408.69	P	5125.00	1.28	
23	Na	1	45	702647.63	P	6864.00	0.98	
24	Mg	1	45	334863.31	P	5243.00	1.57	
27	Al	1	45	101241.50	P	2124.00	2.10	
39	K	1	45	179439.00	P	2733.00	1.52	
44	Ca	2	45	1075137.00	A	24720.00	2.30	
45	Sc	1	---	100519.40	P	751.00	0.75	
45	Sc	2	---	4903760.00	A	94670.00	1.93	
47	Ti	1	45	3529.45	P	52.78	1.50	
51	V	1	45	139329.91	P	1816.00	1.30	
51	V	2	---		A			
52	Cr	1	45	183747.70	P	2454.00	1.34	
55	Mn	1	45	82430.42	P	1355.00	1.64	
56	Fe	1	72	2928974.00	A	47660.00	1.63	
59	Co	1	72	326772.69	P	3830.00	1.17	
60	Ni	1	72	91620.94	P	920.70	1.00	
60	Ni	2	---		P			
63	Cu	1	72	260628.00	P	3021.00	1.16	
63	Cu	2	---		P			
66	Zn	1	72	28033.57	P	232.00	0.83	
66	Zn	2	---		P			
72	Ge	1	---	61698.19	P	610.60	0.99	
72	Ge	2	---		P			
75	As	1	72	14383.81	P	210.50	1.46	
78	Se	1	72	928.04	P	25.50	2.75	
88	Sr	2	115	2192291.00	A	37280.00	1.70	
95	Mo	2	115	374331.41	P	5534.00	1.48	
107	Ag	2	115	987868.81	M	25080.00	2.54	
111	Cd	2	115	195921.70	P	1098.00	0.56	
115	In	2	---	5515567.00	A	26760.00	0.49	
118	Sn	2	115	590300.88	P	8131.00	1.38	
121	Sb	2	115	680590.81	P	9500.00	1.40	
137	Ba	2	115	287035.31	P	6333.00	2.21	
205	Tl	2	209	1789465.00	A	9865.00	0.55	
208	Pb	2	209	2420104.00	A	30750.00	1.27	
209	Bi	2	---	4450698.00	A	91720.00	2.06	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2		4058081.50	0.30	4008511.30	101.2	70 -	120	
45	Sc	1		100519.38	0.75	100020.03	100.5	70 -	120	
45	Sc	2		4903760.00	1.93	4946391.00	99.1	70 -	120	
72	Ge	1		61698.19	0.99	61823.22	99.8	70 -	120	
115	In	2		5515567.50	0.49	5661857.00	97.4	70 -	120	
209	Bi	2		4450698.00	2.06	4553307.50	97.7	70 -	120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 500/10000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jan 29 2014 12:58 pm
Last Cal. Update: Jan 29 2014 12:56 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4022520.00	A	50170.00	1.25	
7	Li	2	45	278805.19	P	5264.00	1.89	
9	Be	2	45	885115.63	A	13330.00	1.51	
11	B	2	45	789047.69	A	4631.00	0.59	
23	Na	1	45	1409285.00	A	14120.00	1.00	
24	Mg	1	45	653941.88	P	11660.00	1.78	
27	Al	1	45	197542.50	P	3779.00	1.91	
39	K	1	45	350825.31	P	5363.00	1.53	
44	Ca	2	45	2075197.00	A	25890.00	1.25	
45	Sc	1	---	99694.22	P	925.50	0.93	
45	Sc	2	---	4821568.00	A	86290.00	1.79	
47	Ti	1	45	6944.27	P	154.60	2.23	
51	V	1	45	270092.91	P	4775.00	1.77	
51	V	2	---		A			
52	Cr	1	45	357569.81	P	5979.00	1.67	
55	Mn	1	45	160375.50	P	2769.00	1.73	
56	Fe	1	72	5576025.00	A	92290.00	1.66	
59	Co	1	72	633114.50	P	10330.00	1.63	
60	Ni	1	72	177611.00	P	2413.00	1.36	
60	Ni	2	---		P			
63	Cu	1	72	501304.81	P	7301.00	1.46	
63	Cu	2	---		A			
66	Zn	1	72	53659.74	P	601.00	1.12	
66	Zn	2	---		P			
72	Ge	1	---	60772.28	P	859.80	1.41	
72	Ge	2	---		P			
75	As	1	72	27825.11	P	364.30	1.31	
78	Se	1	72	1762.17	P	24.81	1.41	
88	Sr	2	115	4126733.00	A	53380.00	1.29	
95	Mo	2	115	726291.19	P	11190.00	1.54	
107	Ag	2	115	1930416.00	A	28450.00	1.47	
111	Cd	2	115	378438.59	P	6959.00	1.84	
115	In	2	---	5473742.00	A	77770.00	1.42	
118	Sn	2	115	1180336.00	A	12160.00	1.03	
121	Sb	2	115	1352692.00	A	14640.00	1.08	
137	Ba	2	115	554796.88	P	5316.00	0.96	
205	Tl	2	209	3419286.00	A	22850.00	0.67	
208	Pb	2	209	4688571.00	A	70440.00	1.50	
209	Bi	2	---	4336564.00	A	19580.00	0.45	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4022520.30	1.25	4008511.30	100.3	70 - 120	
45	Sc	1	99694.22	0.93	100020.03	99.7	70 - 120	
45	Sc	2	4821568.50	1.79	4946391.00	97.5	70 - 120	
72	Ge	1	60772.28	1.41	61823.22	98.3	70 - 120	
115	In	2	5473742.00	1.42	5661857.00	96.7	70 - 120	
209	Bi	2	4336563.50	0.45	4553307.50	95.2	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 2000/25000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jan 29 2014 01:04 pm
Last Cal. Update: Jan 29 2014 01:02 pm

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)	Flag
6 Li	2 ---	4026288.00	A	61180.00	1.52	
7 Li	2 45	278771.41	P	3292.00	1.18	
9 Be	2 45	3410739.00	A	36670.00	1.08	
11 B	2 45	3054637.00	A	36530.00	1.20	
23 Na	1 45	3364557.00	A	42530.00	1.26	
24 Mg	1 45	1658142.00	A	25680.00	1.55	
27 Al	1 45	275.56	P	64.59	23.44	
39 K	1 45	871145.00	M	12900.00	1.48	
44 Ca	2 45	4978246.00	A	48330.00	0.97	
45 Sc	1 ---	99150.14	P	550.80	0.56	
45 Sc	2 ---	4782962.00	A	65940.00	1.38	
47 Ti	1 45	28034.07	P	518.00	1.85	
51 V	1 45	1119550.00	A	17790.00	1.59	
51 V	2 ---		A			
52 Cr	1 45	1457041.00	A	12760.00	0.88	
55 Mn	1 45	635680.38	P	11320.00	1.78	
56 Fe	1 72	161913.91	P	1878.00	1.16	
59 Co	1 72	2520828.00	A	38150.00	1.51	
60 Ni	1 72	696848.13	P	7395.00	1.06	
60 Ni	2 ---		A			
63 Cu	1 72	1993005.00	A	20350.00	1.02	
63 Cu	2 ---		A			
66 Zn	1 72	208788.80	P	2405.00	1.15	
66 Zn	2 ---		A			
72 Ge	1 ---	60062.12	P	364.50	0.61	
72 Ge	2 ---		P			
75 As	1 72	110778.10	P	1779.00	1.61	
78 Se	1 72	7013.05	P	123.60	1.76	
88 Sr	2 115	16292810.00	A	184400.00	1.13	
95 Mo	2 115	3007422.00	A	25520.00	0.85	
107 Ag	2 115	1048.98	P	233.90	22.30	
111 Cd	2 115	1533010.00	A	14110.00	0.92	
115 In	2 ---	5351665.00	A	63190.00	1.18	
118 Sn	2 115	4564036.00	A	46660.00	1.02	
121 Sb	2 115	906.74	P	183.50	20.24	
137 Ba	2 115	2283334.00	A	26680.00	1.17	
205 Tl	2 209	13279560.00	A	141400.00	1.06	
208 Pb	2 209	18262680.00	A	143900.00	0.79	
209 Bi	2 ---	4253240.00	A	26090.00	0.61	

ISTD Elements

Element		CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2	4026288.30	1.52	4008511.30	100.4	70 - 120	
45 Sc	1	99150.13	0.56	100020.03	99.1	70 - 120	
45 Sc	2	4782962.00	1.38	4946391.00	96.7	70 - 120	
72 Ge	1	60062.12	0.61	61823.22	97.2	70 - 120	
115 In	2	5351665.50	1.18	5661857.00	94.5	70 - 120	
209 Bi	2	4253240.50	0.61	4553307.50	93.4	70 - 120	

ICSA QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\035ICSA.D\035ICSA.D#

Date Acquired:	Jan 29 2014 01:22 pm	Sample Name:	**ICSA-140129**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	349.000	ppb	1.97	8.00	5.00	FailSoil
9	Be	2	45	0.279	ppb	46.00	0.32	0.80	
11	B	2	45	8.055	ppb	0.89	30.00	30.00	
23	Na	1	45	94340.000	ppb	0.81	#######	#######	
24	Mg	1	45	94510.000	ppb	1.65	#######	#######	
27	Al	1	45	102400.000	ppb	1.66	#######	#######	
39	K	1	45	97330.000	ppb	1.03	#######	#######	
44	Ca	2	45	95020.000	ppb	0.87	#######	#######	
47	Ti	1	45	2006.000	ppb	2.14	10.00	10.00	
51	V	1	45	0.267	ppb	32.74	10.00	10.00	
52	Cr	1	45	0.639	ppb	21.36	8.00	5.00	
55	Mn	1	45	2.969	ppb	9.58	8.00	10.00	
56	Fe	1	72	94660.000	ppb	1.92	#######	#######	
59	Co	1	72	2.045	ppb	4.55	8.00	10.00	
60	Ni	1	72	1.850	ppb	7.29	8.00	10.00	
63	Cu	1	72	2.293	ppb	10.86	8.00	10.00	
66	Zn	1	72	1.508	ppb	5.91	10.00	5.00	
75	As	1	72	0.537	ppb	14.80	4.00	5.00	
78	Se	1	72	0.501	ppb	29.15	2.00	5.00	
88	Sr	2	115	0.667	ppb	17.87	10.00	10.00	
95	Mo	2	115	2048.000	ppb	1.77	8.00	5.00	
107	Ag	2	115	0.434	ppb	3.82	0.80	2.00	
111	Cd	2	115	0.698	ppb	40.94	1.20	1.00	
118	Sn	2	115	0.715	ppb	8.78	10.00	10.00	
121	Sb	2	115	1.055	ppb	4.86	4.00	2.50	
137	Ba	2	115	7.429	ppb	3.12	8.00	10.00	
205	Tl	2	209	0.549	ppb	20.49	4.00	1.50	
208	Pb	2	209	0.429	ppb	25.27	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3770853.80	1.27	4008511.30	94.1	70 - 120	
45	Sc	1	99645.70	1.65	100020.03	99.6	70 - 120	
45	Sc	2	4606770.50	0.55	4946391.00	93.1	70 - 120	
72	Ge	1	59904.20	1.71	61823.22	96.9	70 - 120	
115	In	2	5002899.00	0.83	5661857.00	88.4	70 - 120	
209	Bi	2	3849244.50	1.47	4553307.50	84.5	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\036ICSB.D\036ICSB.D#

Date Acquired:	Jan 29 2014 01:28 pm	Sample Name:	**ICSAB-140129**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	-1165.00	ppb	0.44	---	80 -		120	
9	Be	2	45	0.13	ppb	42.17	---	80 -		120	
11	B	2	45	4.86	ppb	2.15	---	80 -		120	
23	Na	1	45	93360.00	ppb	1.13	100000.00	80 -		120	
24	Mg	1	45	91970.00	ppb	0.72	100000.00	80 -		120	
27	Al	1	45	99480.00	ppb	0.89	100000.00	80 -		120	
39	K	1	45	96730.00	ppb	0.90	100000.00	80 -		120	
44	Ca	2	45	95550.00	ppb	0.79	100000.00	80 -		120	
47	Ti	1	45	2000.00	ppb	0.55	---	80 -		120	
51	V	1	45	38.77	ppb	1.42	40.00	80 -		120	
52	Cr	1	45	19.35	ppb	1.75	20.00	80 -		120	
55	Mn	1	45	21.96	ppb	2.53	20.00	80 -		120	
56	Fe	1	72	94280.00	ppb	0.41	100000.00	80 -		120	
59	Co	1	72	40.16	ppb	0.80	40.00	80 -		120	
60	Ni	1	72	39.23	ppb	1.11	40.00	80 -		120	
63	Cu	1	72	20.79	ppb	1.25	20.00	80 -		120	
66	Zn	1	72	20.41	ppb	1.50	20.00	80 -		120	
75	As	1	72	20.18	ppb	0.60	20.00	80 -		120	
78	Se	1	72	19.59	ppb	4.78	20.00	80 -		120	
88	Sr	2	115	0.52	ppb	12.31	---	80 -		120	
95	Mo	2	115	2061.00	ppb	1.03	---	80 -		120	
107	Ag	2	115	18.55	ppb	1.89	20.00	80 -		120	
111	Cd	2	115	9.61	ppb	0.86	10.00	80 -		120	
118	Sn	2	115	0.37	ppb	10.53	---	80 -		120	
121	Sb	2	115	0.96	ppb	0.61	---	80 -		120	
137	Ba	2	115	0.39	ppb	17.42	---	80 -		120	
205	Tl	2	209	0.20	ppb	26.84	---	80 -		120	
208	Pb	2	209	0.28	ppb	13.08	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3660340.80	0.87	4008511.30	91.3	70 -		120	
45	Sc	1	98595.56	1.12	100020.03	98.6	70 -		120	
45	Sc	2	4654309.50	0.92	4946391.00	94.1	70 -		120	
72	Ge	1	59205.71	0.53	61823.22	95.8	70 -		120	
115	In	2	5042518.50	0.59	5661857.00	89.1	70 -		120	
209	Bi	2	3903827.50	1.11	4553307.50	85.7	70 -		120	

CCV QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\039ICV.D\039ICV.D#

Date Acquired:	Jan 29 2014 01:46 pm	Sample Name:	**ICV1-140129**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	-2125.00	ppb	0.86	100.00	90 -	110	######	Fail
9	Be	2	45	103.90	ppb	0.59	100.00	90 -	110	103.9	
11	B	2	45	93.68	ppb	1.74	100.00	90 -	110	93.7	
23	Na	1	45	2476.00	ppb	0.51	2500.00	90 -	110	99.0	
24	Mg	1	45	2465.00	ppb	0.51	2500.00	90 -	110	98.6	
27	Al	1	45	2517.00	ppb	1.75	2500.00	90 -	110	100.7	
39	K	1	45	2503.00	ppb	1.08	2500.00	90 -	110	100.1	
44	Ca	2	45	2490.00	ppb	0.65	2500.00	90 -	110	99.6	
47	Ti	1	45	98.13	ppb	5.83	100.00	90 -	110	98.1	
51	V	1	45	97.27	ppb	0.91	100.00	90 -	110	97.3	
52	Cr	1	45	98.25	ppb	1.55	100.00	90 -	110	98.3	
55	Mn	1	45	103.20	ppb	1.75	100.00	90 -	110	103.2	
56	Fe	1	72	2585.00	ppb	1.70	2500.00	90 -	110	103.4	
59	Co	1	72	102.50	ppb	0.64	100.00	90 -	110	102.5	
60	Ni	1	72	105.30	ppb	0.85	100.00	90 -	110	105.3	
63	Cu	1	72	102.10	ppb	0.67	100.00	90 -	110	102.1	
66	Zn	1	72	105.80	ppb	2.72	100.00	90 -	110	105.8	
75	As	1	72	101.80	ppb	1.55	100.00	90 -	110	101.8	
78	Se	1	72	105.60	ppb	0.99	100.00	90 -	110	105.6	
88	Sr	2	115	100.50	ppb	0.73	100.00	90 -	110	100.5	
95	Mo	2	115	98.04	ppb	0.90	100.00	90 -	110	98.0	
107	Ag	2	115	98.44	ppb	0.81	100.00	90 -	110	98.4	
111	Cd	2	115	100.70	ppb	0.77	100.00	90 -	110	100.7	
118	Sn	2	115	99.94	ppb	1.38	100.00	90 -	110	99.9	
121	Sb	2	115	96.56	ppb	0.56	100.00	90 -	110	96.6	
137	Ba	2	115	97.30	ppb	1.31	100.00	90 -	110	97.3	
205	Tl	2	209	96.94	ppb	1.29	100.00	90 -	110	96.9	
208	Pb	2	209	97.57	ppb	0.44	100.00	90 -	110	97.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3804005.30	0.77	4008511.30	94.9	70 -	120		
45	Sc	1	106143.99	0.99	100020.03	106.1	70 -	120		
45	Sc	2	4930716.00	0.74	4946391.00	99.7	70 -	120		
72	Ge	1	64889.82	1.23	61823.22	105.0	70 -	120		
115	In	2	5666211.00	0.56	5661857.00	100.1	70 -	120		
209	Bi	2	4591782.50	0.30	4553307.50	100.8	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\042LCVL.D\042LCVL.D#

Date Acquired:	Jan 29 2014 02:04 pm	Sample Name:	**ILCVL-140129**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	-918.50	ppb	0.59	5.00	70 -	130	######	Fail
9	Be	2	45	1.11	ppb	3.84	1.00	70 -	130	111.3	
11	B	2	45	20.21	ppb	1.74	20.00	70 -	130	101.1	
23	Na	1	45	110.20	ppb	3.57	100.00	70 -	130	110.2	
24	Mg	1	45	101.70	ppb	2.81	100.00	70 -	130	101.7	
27	Al	1	45	107.50	ppb	5.08	100.00	70 -	130	107.5	
39	K	1	45	110.80	ppb	1.57	100.00	70 -	130	110.8	
44	Ca	2	45	108.60	ppb	0.72	100.00	70 -	130	108.6	
47	Ti	1	45	5.70	ppb	16.79	5.00	70 -	130	114.1	
51	V	1	45	1.08	ppb	4.89	1.00	70 -	130	107.6	
52	Cr	1	45	5.18	ppb	2.14	5.00	70 -	130	103.5	
55	Mn	1	45	5.49	ppb	4.57	5.00	70 -	130	109.8	
56	Fe	1	72	109.30	ppb	3.17	100.00	70 -	130	109.3	
59	Co	1	72	5.28	ppb	3.02	5.00	70 -	130	105.5	
60	Ni	1	72	5.43	ppb	1.10	5.00	70 -	130	108.6	
63	Cu	1	72	5.59	ppb	2.44	5.00	70 -	130	111.9	
66	Zn	1	72	5.58	ppb	4.06	5.00	70 -	130	111.6	
75	As	1	72	5.56	ppb	1.05	5.00	70 -	130	111.1	
78	Se	1	72	5.86	ppb	9.08	5.00	70 -	130	117.1	
88	Sr	2	115	5.22	ppb	0.81	5.00	70 -	130	104.4	
95	Mo	2	115	5.09	ppb	2.47	5.00	70 -	130	101.8	
107	Ag	2	115	2.12	ppb	0.77	2.00	70 -	130	105.9	
111	Cd	2	115	1.12	ppb	5.63	1.00	70 -	130	112.1	
118	Sn	2	115	5.21	ppb	2.65	5.00	70 -	130	104.2	
121	Sb	2	115	2.09	ppb	1.30	2.00	70 -	130	104.6	
137	Ba	2	115	5.17	ppb	2.36	5.00	70 -	130	103.5	
205	Tl	2	209	1.00	ppb	1.61	1.00	70 -	130	100.2	
208	Pb	2	209	1.03	ppb	2.12	1.00	70 -	130	103.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3928592.80	0.49	4008511.30	98.0	70 -	120		
45	Sc	1	107466.51	2.72	100020.03	107.4	70 -	120		
45	Sc	2	4952631.00	0.40	4946391.00	100.1	70 -	120		
72	Ge	1	65321.16	2.42	61823.22	105.7	70 -	120		
115	In	2	5708325.50	0.69	5661857.00	100.8	70 -	120		
209	Bi	2	4639862.50	0.77	4553307.50	101.9	70 -	120		

ICB QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\043_ICB.D\043_ICB.D#

Date Acquired:	Jan 29 2014 02:10 pm	Sample Name:	**ICB1-140129**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm	Instrument:	ICPMS3

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	-395.80	ppb	0.42	5.00	
9	Be	2	45	0.02	ppb	12.74	0.80	
11	B	2	45	0.12	ppb	3.63	10.00	
23	Na	1	45	0.52	ppb	1.76	50.00	
24	Mg	1	45	-2.12	ppb	14.77	50.00	
27	Al	1	45	-0.66	ppb	24.84	30.00	
39	K	1	45	4.60	ppb	2.73	50.00	
44	Ca	2	45	1.68	ppb	4.19	50.00	
47	Ti	1	45	0.08	ppb	114.58	10.00	
51	V	1	45	0.02	ppb	12.34	10.00	
52	Cr	1	45	0.01	ppb	12.54	3.00	
55	Mn	1	45	0.02	ppb	15.39	10.00	
56	Fe	1	72	-0.23	ppb	24.04	50.00	
59	Co	1	72	0.01	ppb	26.75	3.00	
60	Ni	1	72	0.00	ppb	10.19	3.00	
63	Cu	1	72	0.18	ppb	10.40	3.00	
66	Zn	1	72	-0.07	ppb	7.03	10.00	
75	As	1	72	0.04	ppb	15.18	10.00	
78	Se	1	72	-0.08	ppb	18.73	10.00	
88	Sr	2	115	0.00	ppb	9.27	10.00	
95	Mo	2	115	0.04	ppb	9.49	10.00	
107	Ag	2	115	0.00	ppb	40.17	2.00	
111	Cd	2	115	0.01	ppb	164.46	1.00	
118	Sn	2	115	-0.01	ppb	2.31	10.00	
121	Sb	2	115	0.00	ppb	23.35	1.00	
137	Ba	2	115	0.00	ppb	50.70	3.00	
205	Tl	2	209	0.02	ppb	7.85	1.00	
208	Pb	2	209	0.01	ppb	7.63	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3959384.00	0.77	4008511.30	98.8	70 - 120	
45	Sc	1	107581.03	1.50	100020.03	107.6	70 - 120	
45	Sc	2	4933485.00	0.38	4946391.00	99.7	70 - 120	
72	Ge	1	65974.60	1.34	61823.22	106.7	70 - 120	
115	In	2	5692033.50	0.51	5661857.00	100.5	70 - 120	
209	Bi	2	4608386.00	0.60	4553307.50	101.2	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\044__PB.D\044__PB.D#

Date Acquired:	Jan 29 2014 02:16 pm	Sample Name:	**MB-61543**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLK6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.	RSD(%)	MDL	RL	Flag
7	Li	2	45	-406.600 ppb	0.17	2.0	5.00	
9	Be	2	45	0.004 ppb	32.23	0.3	0.80	
11	B	2	45	6.944 ppb	0.91	10.0	30.00	
23	Na	1	45	0.688 ppb	4.60	100.0	#####	
24	Mg	1	45	0.677 ppb	15.59	100.0	#####	
27	Al	1	45	42.810 ppb	3.75	10.0	30.00	Fail
39	K	1	45	1.702 ppb	3.32	100.0	#####	
44	Ca	2	45	87.020 ppb	1.43	100.0	#####	
47	Ti	1	45	0.173 ppb	137.76	3.0	10.00	
51	V	1	45	0.055 ppb	9.66	3.0	10.00	
52	Cr	1	45	0.115 ppb	11.78	2.0	5.00	
55	Mn	1	45	0.149 ppb	11.03	3.0	10.00	
56	Fe	1	72	2.256 ppb	7.19	50.0	#####	
59	Co	1	72	0.005 ppb	50.00	3.0	10.00	
60	Ni	1	72	-0.002 ppb	16.67	3.0	10.00	
63	Cu	1	72	0.121 ppb	5.23	2.0	10.00	
66	Zn	1	72	1.372 ppb	6.03	2.0	5.00	
75	As	1	72	0.017 ppb	22.39	2.0	5.00	
78	Se	1	72	-0.088 ppb	17.54	2.0	5.00	
88	Sr	2	115	0.248 ppb	2.10	3.0	10.00	
95	Mo	2	115	-0.076 ppb	5.85	2.0	5.00	
107	Ag	2	115	0.008 ppb	8.80	1.0	2.00	
111	Cd	2	115	0.020 ppb	46.03	0.3	1.00	
118	Sn	2	115	-0.014 ppb	10.51	3.0	10.00	
121	Sb	2	115	-0.005 ppb	11.18	0.8	2.50	
137	Ba	2	115	0.192 ppb	1.86	3.0	10.00	
205	Tl	2	209	0.009 ppb	2.74	0.5	1.50	
208	Pb	2	209	0.010 ppb	6.43	0.3	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4013416.30	0.88	4008511.30	100.1	70 - 120	
45	Sc	1	108531.03	1.15	100020.03	108.5	70 - 120	
45	Sc	2	5047006.50	0.50	4946391.00	102.0	70 - 120	
72	Ge	1	66380.43	1.63	61823.22	107.4	70 - 120	
115	In	2	5783846.00	0.51	5661857.00	102.2	70 - 120	
209	Bi	2	4675300.00	0.86	4553307.50	102.7	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\045_LCS.D\045_LCS.D#

Date Acquired:	Jan 29 2014 02:22 pm	Sample Name:	LCS-61543
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element			Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7 Li	2	45	249400.00	ppb	0.44	200.00	80 -	120	######	Fail
9 Be	2	45	219.60	ppb	1.31	200.00	80 -	120	109.8	
11 B	2	45	205.40	ppb	2.19	200.00	80 -	120	102.7	
23 Na	1	45	5400.00	ppb	2.41	5000.00	80 -	120	108.0	
24 Mg	1	45	5267.00	ppb	1.33	5000.00	80 -	120	105.3	
27 Al	1	45	5359.00	ppb	3.05	5000.00	80 -	120	107.2	
39 K	1	45	5472.00	ppb	1.76	5000.00	80 -	120	109.4	
44 Ca	2	45	5584.00	ppb	2.53	5000.00	80 -	120	111.7	
47 Ti	1	45	207.20	ppb	3.17	200.00	80 -	120	103.6	
51 V	1	45	203.30	ppb	2.05	200.00	80 -	120	101.7	
52 Cr	1	45	200.90	ppb	2.10	200.00	80 -	120	100.5	
55 Mn	1	45	215.90	ppb	2.08	200.00	80 -	120	108.0	
56 Fe	1	72	5362.00	ppb	3.28	5000.00	80 -	120	107.2	
59 Co	1	72	210.30	ppb	2.31	200.00	80 -	120	105.2	
60 Ni	1	72	216.90	ppb	2.01	200.00	80 -	120	108.5	
63 Cu	1	72	211.20	ppb	1.86	200.00	80 -	120	105.6	
66 Zn	1	72	223.90	ppb	2.31	200.00	80 -	120	112.0	
75 As	1	72	217.20	ppb	2.26	200.00	80 -	120	108.6	
78 Se	1	72	227.30	ppb	2.24	200.00	80 -	120	113.7	
88 Sr	2	115	212.70	ppb	1.28	200.00	80 -	120	106.4	
95 Mo	2	115	207.00	ppb	1.92	200.00	80 -	120	103.5	
107 Ag	2	115	204.80	ppb	1.16	200.00	80 -	120	102.4	
111 Cd	2	115	205.80	ppb	1.25	200.00	80 -	120	102.9	
118 Sn	2	115	204.00	ppb	0.90	200.00	80 -	120	102.0	
121 Sb	2	115	203.20	ppb	1.64	200.00	80 -	120	101.6	
137 Ba	2	115	199.50	ppb	0.79	200.00	80 -	120	99.8	
205 Tl	2	209	213.60	ppb	1.10	200.00	80 -	120	106.8	
208 Pb	2	209	204.70	ppb	1.85	200.00	80 -	120	102.4	

ISTD Elements

Element		CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6 Li	2	3875972.00	0.85	4008511.30	96.7	70 -	120	
45 Sc	1	107751.96	1.52	100020.03	107.7	70 -	120	
45 Sc	2	4900720.50	1.52	4946391.00	99.1	70 -	120	
72 Ge	1	64753.11	1.48	61823.22	104.7	70 -	120	
115 In	2	5605696.00	1.47	5661857.00	99.0	70 -	120	
209 Bi	2	4477715.00	1.36	4553307.50	98.3	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\046_LCS.D\046_LCS.D#

Date Acquired:	Jan 29 2014 02:28 pm	Sample Name:	**LCSD-61543**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSD6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	256800.00	ppb	1.24	200.00	80 -	120	######	Fail
9	Be	2	45	226.50	ppb	0.23	200.00	80 -	120	113.3	
11	B	2	45	212.70	ppb	0.97	200.00	80 -	120	106.4	
23	Na	1	45	5564.00	ppb	2.30	5000.00	80 -	120	111.3	
24	Mg	1	45	5380.00	ppb	1.53	5000.00	80 -	120	107.6	
27	Al	1	45	5487.00	ppb	1.72	5000.00	80 -	120	109.7	
39	K	1	45	5552.00	ppb	0.90	5000.00	80 -	120	111.0	
44	Ca	2	45	5687.00	ppb	1.38	5000.00	80 -	120	113.7	
47	Ti	1	45	214.20	ppb	1.82	200.00	80 -	120	107.1	
51	V	1	45	207.00	ppb	1.95	200.00	80 -	120	103.5	
52	Cr	1	45	204.10	ppb	1.81	200.00	80 -	120	102.1	
55	Mn	1	45	219.00	ppb	2.36	200.00	80 -	120	109.5	
56	Fe	1	72	5382.00	ppb	2.28	5000.00	80 -	120	107.6	
59	Co	1	72	209.60	ppb	1.18	200.00	80 -	120	104.8	
60	Ni	1	72	217.20	ppb	1.23	200.00	80 -	120	108.6	
63	Cu	1	72	211.40	ppb	1.36	200.00	80 -	120	105.7	
66	Zn	1	72	223.60	ppb	1.63	200.00	80 -	120	111.8	
75	As	1	72	218.50	ppb	1.77	200.00	80 -	120	109.3	
78	Se	1	72	228.40	ppb	2.62	200.00	80 -	120	114.2	
88	Sr	2	115	219.50	ppb	1.83	200.00	80 -	120	109.8	
95	Mo	2	115	212.00	ppb	0.85	200.00	80 -	120	106.0	
107	Ag	2	115	212.30	ppb	0.69	200.00	80 -	120	106.2	
111	Cd	2	115	211.60	ppb	1.36	200.00	80 -	120	105.8	
118	Sn	2	115	208.40	ppb	1.73	200.00	80 -	120	104.2	
121	Sb	2	115	209.40	ppb	1.04	200.00	80 -	120	104.7	
137	Ba	2	115	206.00	ppb	1.25	200.00	80 -	120	103.0	
205	Tl	2	209	217.10	ppb	1.33	200.00	80 -	120	108.6	
208	Pb	2	209	207.20	ppb	0.64	200.00	80 -	120	103.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	3842774.00	2.27	4008511.30	95.9	70 -	120	
45	Sc	1	104638.72	1.37	100020.03	104.6	70 -	120	
45	Sc	2	4817038.00	0.83	4946391.00	97.4	70 -	120	
72	Ge	1	63843.67	1.43	61823.22	103.3	70 -	120	
115	In	2	5495806.00	1.64	5661857.00	97.1	70 -	120	
209	Bi	2	4421545.00	1.44	4553307.50	97.1	70 -	120	

DT QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\049DT1.D\049DT1.D#

Date Acquired:	Jan 29 2014 02:46 pm	Sample Name:	**1401171-08B SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD 6020A_W
Operator:	SW	Bench Diln:	5.00
Last Cal. Update:	Jan 29 2014 01:07 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element			Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7 Li	2	45	1358.00	ppb	0.76	#########	90 - 110	0.2	
9 Be	2	45	0.03	ppb	14.59	0.07	90 - 110	242.8	
11 B	2	45	13.69	ppb	0.78	64.72	90 - 110	105.8	GOOD
23 Na	1	45	1787.00	ppb	1.33	9104.00	90 - 110	98.1	GOOD
24 Mg	1	45	3125.00	ppb	1.59	15950.00	90 - 110	98.0	GOOD
27 Al	1	45	1.55	ppb	2.36	10.00	90 - 110	77.7	
39 K	1	45	259.60	ppb	2.57	1241.00	90 - 110	104.6	GOOD
44 Ca	2	45	14400.00	ppb	0.52	68850.00	90 - 110	104.6	GOOD
47 Ti	1	45	-0.03	ppb	0.00	0.23	90 - 110	-68.0	
51 V	1	45	0.56	ppb	6.23	2.61	90 - 110	107.4	GOOD
52 Cr	1	45	0.05	ppb	11.62	0.18	90 - 110	134.2	
55 Mn	1	45	0.06	ppb	31.74	0.26	90 - 110	109.1	GOOD
56 Fe	1	72	1.76	ppb	1.48	12.80	90 - 110	68.9	
59 Co	1	72	0.01	ppb	17.39	0.05	90 - 110	109.3	GOOD
60 Ni	1	72	0.02	ppb	18.03	0.12	90 - 110	95.6	GOOD
63 Cu	1	72	0.41	ppb	3.50	1.40	90 - 110	147.6	
66 Zn	1	72	2.44	ppb	3.05	13.23	90 - 110	92.0	GOOD
75 As	1	72	0.19	ppb	12.14	0.81	90 - 110	114.6	
78 Se	1	72	0.09	ppb	12.13	0.35	90 - 110	134.7	
88 Sr	2	115	94.97	ppb	0.81	474.90	90 - 110	100.0	GOOD
95 Mo	2	115	0.11	ppb	2.23	0.79	90 - 110	71.6	
107 Ag	2	115	0.03	ppb	26.41	0.07	90 - 110	224.6	
111 Cd	2	115	0.04	ppb	23.02	0.07	90 - 110	289.9	
118 Sn	2	115	-0.03	ppb	6.11	0.06	90 - 110	-226.9	
121 Sb	2	115	0.04	ppb	22.75	0.10	90 - 110	194.1	
137 Ba	2	115	7.08	ppb	1.67	35.18	90 - 110	100.7	GOOD
205 Tl	2	209	0.06	ppb	11.02	0.14	90 - 110	217.6	
208 Pb	2	209	0.08	ppb	7.58	0.34	90 - 110	111.1	

ISTD Elements

Element		CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2	4222995.00	1.14	4008511.30	105.4	70 - 120	
45 Sc	1	114126.26	1.78	100020.03	114.1	70 - 120	
45 Sc	2	5232931.50	0.24	4946391.00	105.8	70 - 120	
72 Ge	1	69803.73	1.47	61823.22	112.9	70 - 120	
115 In	2	5968457.50	1.02	5661857.00	105.4	70 - 120	
209 Bi	2	4853569.50	1.15	4553307.50	106.6	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\057SMPL.D\057SMPL.D#

Date Acquired:	Jan 29 2014 03:34 pm	Sample Name:	**1401180-01A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	23460.000	ppb	#REF!	0.30	2000.00	OUTCAL
9	Be	2	45	0.013	ppb	#REF!	17.47	2000.00	ND
11	B	2	45	175.700	ppb	#REF!	2.09	2000.00	>RL
23	Na	1	45	53450.000	ppb	#REF!	0.68	25000.00	OUTCAL
24	Mg	1	45	6240.000	ppb	#REF!	0.95	25000.00	>RL
27	Al	1	45	18.340	ppb	#REF!	5.28	10000.00	J
39	K	1	45	1185.000	ppb	#REF!	1.17	25000.00	>RL
44	Ca	2	45	130200.000	ppb	#REF!	0.27	25000.00	OUTCAL
47	Ti	1	45	0.226	ppb	#REF!	75.51	2000.00	ND
51	V	1	45	1.373	ppb	#REF!	2.19	2000.00	ND
52	Cr	1	45	3.643	ppb	#REF!	21.32	2000.00	J
55	Mn	1	45	3.048	ppb	#REF!	6.85	2000.00	J
56	Fe	1	72	10.290	ppb	#REF!	1.71	10000.00	ND
59	Co	1	72	0.064	ppb	#REF!	15.29	2000.00	ND
60	Ni	1	72	1.429	ppb	#REF!	5.00	2000.00	ND
63	Cu	1	72	1.343	ppb	#REF!	7.15	2000.00	ND
66	Zn	1	72	2.127	ppb	#REF!	3.83	2000.00	J
75	As	1	72	1.036	ppb	#REF!	5.32	2000.00	ND
78	Se	1	72	11.450	ppb	#REF!	3.58	2000.00	>RL
88	Sr	2	115	662.800	ppb	#REF!	0.91	2000.00	>RL
95	Mo	2	115	0.648	ppb	#REF!	4.45	2000.00	ND
107	Ag	2	115	0.011	ppb	#REF!	7.02	500.00	ND
111	Cd	2	115	0.037	ppb	#REF!	12.59	2000.00	ND
118	Sn	2	115	-0.147	ppb	#REF!	13.15	2000.00	ND
121	Sb	2	115	0.740	ppb	#REF!	4.78	500.00	ND
137	Ba	2	115	103.800	ppb	#REF!	0.35	2000.00	>RL
205	Tl	2	209	-0.010	ppb	#REF!	18.84	2000.00	ND
208	Pb	2	209	0.233	ppb	#REF!	0.63	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4573212.00	0.89	4008511.30	114.1	70 - 120	
45	Sc	1	122660.41	1.11	100020.03	122.6	70 - 120	ISFail
45	Sc	2	5681726.00	0.79	4946391.00	114.9	70 - 120	
72	Ge	1	72544.20	0.91	61823.22	117.3	70 - 120	
115	In	2	6286500.00	0.25	5661857.00	111.0	70 - 120	
209	Bi	2	4992286.50	0.19	4553307.50	109.6	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\058SMPL.D\058SMPL.D#

Date Acquired:	Jan 29 2014 03:40 pm	Sample Name:	**1401180-02A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	44780.000	ppb	#REF!	1.03	2000.00	OUTCAL
9	Be	2	45	0.015	ppb	#REF!	9.76	2000.00	ND
11	B	2	45	369.100	ppb	#REF!	0.80	2000.00	>RL
23	Na	1	45	70590.000	ppb	#REF!	2.72	25000.00	OUTCAL
24	Mg	1	45	12070.000	ppb	#REF!	3.79	25000.00	>RL
27	Al	1	45	48.330	ppb	#REF!	5.54	10000.00	>RL
39	K	1	45	4855.000	ppb	#REF!	3.41	25000.00	>RL
44	Ca	2	45	192200.000	ppb	#REF!	0.51	25000.00	OUTCAL
47	Ti	1	45	0.756	ppb	#REF!	26.97	2000.00	ND
51	V	1	45	2.024	ppb	#REF!	2.38	2000.00	ND
52	Cr	1	45	1.033	ppb	#REF!	21.37	2000.00	ND
55	Mn	1	45	50.510	ppb	#REF!	4.56	2000.00	>RL
56	Fe	1	72	77.030	ppb	#REF!	3.67	10000.00	J
59	Co	1	72	2.161	ppb	#REF!	3.44	2000.00	ND
60	Ni	1	72	2.420	ppb	#REF!	7.66	2000.00	ND
63	Cu	1	72	0.942	ppb	#REF!	0.97	2000.00	ND
66	Zn	1	72	5.877	ppb	#REF!	7.60	2000.00	>RL
75	As	1	72	1.963	ppb	#REF!	6.06	2000.00	ND
78	Se	1	72	30.080	ppb	#REF!	8.99	2000.00	>RL
88	Sr	2	115	1433.000	ppb	#REF!	0.79	2000.00	>RL
95	Mo	2	115	3.895	ppb	#REF!	4.45	2000.00	J
107	Ag	2	115	0.015	ppb	#REF!	30.52	500.00	ND
111	Cd	2	115	0.100	ppb	#REF!	6.57	2000.00	ND
118	Sn	2	115	-0.133	ppb	#REF!	8.97	2000.00	ND
121	Sb	2	115	0.879	ppb	#REF!	3.20	500.00	J
137	Ba	2	115	39.930	ppb	#REF!	0.93	2000.00	>RL
205	Tl	2	209	0.006	ppb	#REF!	11.22	2000.00	ND
208	Pb	2	209	0.554	ppb	#REF!	3.54	2000.00	J

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4194661.00	0.60	4008511.30	104.6	70 - 120	
45	Sc	1	112753.04	3.64	100020.03	112.7	70 - 120	
45	Sc	2	5257212.00	1.22	4946391.00	106.3	70 - 120	
72	Ge	1	66366.05	3.55	61823.22	107.3	70 - 120	
115	In	2	5807767.00	0.53	5661857.00	102.6	70 - 120	
209	Bi	2	4552798.50	0.94	4553307.50	100.0	70 - 120	

PDS QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\059_PDS.D\059_PDS.D#

Date Acquired:	Jan 29 2014 03:47 pm	Sample Name:	**1401171-08B PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	4838.00	ppb	0.83	#########	200	75-125	######	Fail
9	Be	2	45	211.80	ppb	0.84	0.07	200	75-125	105.9	
11	B	2	45	269.30	ppb	0.56	64.72	200	75-125	102.3	
23	Na	1	45	13360.00	ppb	0.22	9104.00	5000	75-125	85.1	
24	Mg	1	45	19690.00	ppb	1.51	15950.00	5000	75-125	74.8	Fail
27	Al	1	45	5036.00	ppb	1.94	10.00	5000	75-125	100.5	
39	K	1	45	6314.00	ppb	1.14	1241.00	5000	75-125	101.5	
44	Ca	2	45	69260.00	ppb	0.73	68850.00	5000	75-125	8.2	Fail
47	Ti	1	45	197.80	ppb	1.29	0.23	200	75-125	98.8	
51	V	1	45	191.20	ppb	1.73	2.61	200	75-125	94.3	
52	Cr	1	45	189.60	ppb	1.74	0.18	200	75-125	94.7	
55	Mn	1	45	203.80	ppb	1.37	0.26	200	75-125	101.8	
56	Fe	1	72	4975.00	ppb	1.67	12.80	5000	75-125	99.2	
59	Co	1	72	196.30	ppb	1.51	0.05	200	75-125	98.1	
60	Ni	1	72	199.30	ppb	1.24	0.12	200	75-125	99.6	
63	Cu	1	72	189.80	ppb	1.48	1.40	200	75-125	94.2	
66	Zn	1	72	208.40	ppb	2.84	13.23	200	75-125	97.6	
75	As	1	72	203.30	ppb	1.27	0.81	200	75-125	101.2	
78	Se	1	72	209.90	ppb	1.88	0.35	200	75-125	104.8	
88	Sr	2	115	640.60	ppb	1.03	474.90	200	75-125	82.9	
95	Mo	2	115	193.60	ppb	1.10	0.79	200	75-125	96.4	
107	Ag	2	115	182.70	ppb	0.61	0.07	200	75-125	91.3	
111	Cd	2	115	196.00	ppb	1.14	0.07	200	75-125	98.0	
118	Sn	2	115	199.60	ppb	1.05	0.06	200	75-125	99.8	
121	Sb	2	115	181.80	ppb	0.63	0.10	200	75-125	90.8	
137	Ba	2	115	226.40	ppb	0.80	35.18	200	75-125	95.6	
205	Tl	2	209	206.70	ppb	0.62	0.14	200	75-125	103.3	
208	Pb	2	209	198.70	ppb	0.94	0.34	200	75-125	99.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4440438.50	1.67	4008511.30	110.8	70 - 120	
45	Sc	1	119394.34	0.88	100020.03	119.4	70 - 120	
45	Sc	2	5471219.50	0.61	4946391.00	110.6	70 - 120	
72	Ge	1	71633.32	0.83	61823.22	115.9	70 - 120	
115	In	2	6136290.50	1.05	5661857.00	108.4	70 - 120	
209	Bi	2	4983071.50	0.57	4553307.50	109.4	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\060_MS.D\060_MS.D#

Date Acquired:	Jan 29 2014 03:52 pm	Sample Name:	**1401171-08B MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	246400.00	ppb	0.75	########	200	80-120	######	Fail
9	Be	2	45	212.80	ppb	0.69	0.07	200	80-120	106.4	
11	B	2	45	278.30	ppb	1.11	64.72	200	80-120	106.8	
23	Na	1	45	13940.00	ppb	2.75	9104.00	5000	80-120	96.7	
24	Mg	1	45	20350.00	ppb	3.00	15950.00	5000	80-120	88.0	
27	Al	1	45	5203.00	ppb	2.40	10.00	5000	80-120	103.9	
39	K	1	45	6545.00	ppb	1.72	1241.00	5000	80-120	106.1	
44	Ca	2	45	71540.00	ppb	0.45	68850.00	5000	80-120	53.8	Fail
47	Ti	1	45	204.50	ppb	4.13	0.23	200	80-120	102.1	
51	V	1	45	196.70	ppb	2.50	2.61	200	80-120	97.0	
52	Cr	1	45	190.10	ppb	2.34	0.18	200	80-120	95.0	
55	Mn	1	45	208.10	ppb	1.99	0.26	200	80-120	103.9	
56	Fe	1	72	5159.00	ppb	2.04	12.80	5000	80-120	102.9	
59	Co	1	72	196.90	ppb	1.64	0.05	200	80-120	98.4	
60	Ni	1	72	200.20	ppb	1.85	0.12	200	80-120	100.0	
63	Cu	1	72	194.60	ppb	1.52	1.40	200	80-120	96.6	
66	Zn	1	72	214.80	ppb	2.16	13.23	200	80-120	100.8	
75	As	1	72	210.20	ppb	1.97	0.81	200	80-120	104.7	
78	Se	1	72	216.90	ppb	1.68	0.35	200	80-120	108.3	
88	Sr	2	115	664.40	ppb	0.08	474.90	200	80-120	94.8	
95	Mo	2	115	209.40	ppb	0.02	0.79	200	80-120	104.3	
107	Ag	2	115	202.00	ppb	0.70	0.07	200	80-120	101.0	
111	Cd	2	115	201.10	ppb	0.65	0.07	200	80-120	100.5	
118	Sn	2	115	203.80	ppb	0.43	0.06	200	80-120	101.9	
121	Sb	2	115	202.70	ppb	0.54	0.10	200	80-120	101.3	
137	Ba	2	115	232.20	ppb	0.40	35.18	200	80-120	98.5	
205	Tl	2	209	211.70	ppb	0.54	0.14	200	80-120	105.8	
208	Pb	2	209	203.80	ppb	0.45	0.34	200	80-120	101.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4362123.00	0.30	4008511.30	108.8	70	-	120	
45	Sc	1	120193.91	1.81	100020.03	120.2	70	-	120	ISFail
45	Sc	2	5573617.00	1.00	4946391.00	112.7	70	-	120	
72	Ge	1	71914.51	1.49	61823.22	116.3	70	-	120	
115	In	2	6205575.00	1.14	5661857.00	109.6	70	-	120	
209	Bi	2	5044680.00	0.70	4553307.50	110.8	70	-	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\061_MS.D\061_MS.D#

Date Acquired:	Jan 29 2014 03:58 pm	Sample Name:	**1401171-08B MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	248600.00	ppb	0.86	########	200	80-120	######	Fail
9	Be	2	45	215.40	ppb	0.07	0.07	200	80-120	107.7	
11	B	2	45	280.90	ppb	1.26	64.72	200	80-120	108.1	
23	Na	1	45	13820.00	ppb	1.00	9104.00	5000	80-120	94.3	
24	Mg	1	45	20290.00	ppb	2.31	15950.00	5000	80-120	86.8	
27	Al	1	45	5245.00	ppb	2.53	10.00	5000	80-120	104.7	
39	K	1	45	6586.00	ppb	1.87	1241.00	5000	80-120	106.9	
44	Ca	2	45	72830.00	ppb	1.63	68850.00	5000	80-120	79.6	Fail
47	Ti	1	45	201.90	ppb	2.91	0.23	200	80-120	100.8	
51	V	1	45	198.40	ppb	1.80	2.61	200	80-120	97.9	
52	Cr	1	45	192.30	ppb	1.58	0.18	200	80-120	96.1	
55	Mn	1	45	209.10	ppb	1.69	0.26	200	80-120	104.4	
56	Fe	1	72	5192.00	ppb	2.35	12.80	5000	80-120	103.6	
59	Co	1	72	198.40	ppb	1.79	0.05	200	80-120	99.2	
60	Ni	1	72	201.00	ppb	1.69	0.12	200	80-120	100.4	
63	Cu	1	72	194.40	ppb	1.46	1.40	200	80-120	96.5	
66	Zn	1	72	214.20	ppb	2.21	13.23	200	80-120	100.5	
75	As	1	72	211.10	ppb	1.92	0.81	200	80-120	105.1	
78	Se	1	72	220.00	ppb	3.75	0.35	200	80-120	109.8	
88	Sr	2	115	674.20	ppb	0.54	474.90	200	80-120	99.7	
95	Mo	2	115	211.40	ppb	0.47	0.79	200	80-120	105.3	
107	Ag	2	115	198.50	ppb	0.87	0.07	200	80-120	99.2	
111	Cd	2	115	202.10	ppb	0.34	0.07	200	80-120	101.0	
118	Sn	2	115	206.20	ppb	0.57	0.06	200	80-120	103.1	
121	Sb	2	115	199.60	ppb	0.21	0.10	200	80-120	99.7	
137	Ba	2	115	235.10	ppb	1.04	35.18	200	80-120	100.0	
205	Tl	2	209	214.10	ppb	0.47	0.14	200	80-120	107.0	
208	Pb	2	209	205.70	ppb	0.65	0.34	200	80-120	102.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4296421.00	0.43	4008511.30	107.2	70	-	120	
45	Sc	1	120777.53	1.38	100020.03	120.8	70	-	120	ISFail
45	Sc	2	5498856.50	0.90	4946391.00	111.2	70	-	120	
72	Ge	1	72265.95	1.28	61823.22	116.9	70	-	120	
115	In	2	6158535.00	0.41	5661857.00	108.8	70	-	120	
209	Bi	2	4978921.00	0.52	4553307.50	109.3	70	-	120	

CCV QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\063CCV1.D\063CCV1.D#

Date Acquired:	Jan 29 2014 04:13 pm	Sample Name:	CCV1-140129
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	916.70	ppb	0.84	200.00	90 -	110	458.4	Fail
9	Be	2	45	218.80	ppb	1.61	200.00	90 -	110	109.4	
11	B	2	45	202.00	ppb	0.52	200.00	90 -	110	101.0	
23	Na	1	45	5171.00	ppb	1.11	5000.00	90 -	110	103.4	
24	Mg	1	45	4959.00	ppb	1.27	5000.00	90 -	110	99.2	
27	Al	1	45	5141.00	ppb	1.85	5000.00	90 -	110	102.8	
39	K	1	45	5250.00	ppb	1.02	5000.00	90 -	110	105.0	
44	Ca	2	45	5249.00	ppb	0.65	5000.00	90 -	110	105.0	
47	Ti	1	45	195.40	ppb	3.40	200.00	90 -	110	97.7	
51	V	1	45	189.40	ppb	1.93	200.00	90 -	110	94.7	
52	Cr	1	45	190.60	ppb	1.62	200.00	90 -	110	95.3	
55	Mn	1	45	207.90	ppb	2.18	200.00	90 -	110	104.0	
56	Fe	1	72	5046.00	ppb	1.85	5000.00	90 -	110	100.9	
59	Co	1	72	200.20	ppb	1.45	200.00	90 -	110	100.1	
60	Ni	1	72	203.10	ppb	1.03	200.00	90 -	110	101.6	
63	Cu	1	72	195.00	ppb	1.41	200.00	90 -	110	97.5	
66	Zn	1	72	207.80	ppb	2.71	200.00	90 -	110	103.9	
75	As	1	72	205.50	ppb	1.40	200.00	90 -	110	102.8	
78	Se	1	72	222.90	ppb	2.53	200.00	90 -	110	111.5	Fail
88	Sr	2	115	206.60	ppb	1.71	200.00	90 -	110	103.3	
95	Mo	2	115	191.70	ppb	1.55	200.00	90 -	110	95.9	
107	Ag	2	115	191.10	ppb	1.36	200.00	90 -	110	95.6	
111	Cd	2	115	200.00	ppb	1.68	200.00	90 -	110	100.0	
118	Sn	2	115	199.30	ppb	1.25	200.00	90 -	110	99.7	
121	Sb	2	115	174.60	ppb	1.29	200.00	90 -	110	87.3	Fail
137	Ba	2	115	192.70	ppb	2.15	200.00	90 -	110	96.4	
205	Tl	2	209	205.60	ppb	2.20	200.00	90 -	110	102.8	
208	Pb	2	209	198.70	ppb	2.08	200.00	90 -	110	99.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4390152.50	1.02	4008511.30	109.5	70 -	120		
45	Sc	1	121781.78	0.61	100020.03	121.8	70 -	120		ISFail
45	Sc	2	5343426.50	1.24	4946391.00	108.0	70 -	120		
72	Ge	1	72578.45	0.48	61823.22	117.4	70 -	120		
115	In	2	6069384.50	0.92	5661857.00	107.2	70 -	120		
209	Bi	2	4905039.50	0.61	4553307.50	107.7	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\065CCV1.D\065CCV1.D#

Date Acquired:	Jan 29 2014 04:25 pm	Sample Name:	**CCV1-140129**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	1425.00	ppb	0.48	200.00	90 -	110	712.5	Fail
9	Be	2	45	226.10	ppb	0.61	200.00	90 -	110	113.1	Fail
11	B	2	45	213.90	ppb	1.23	200.00	90 -	110	107.0	
23	Na	1	45	5280.00	ppb	0.51	5000.00	90 -	110	105.6	
24	Mg	1	45	5022.00	ppb	1.37	5000.00	90 -	110	100.4	
27	Al	1	45	5268.00	ppb	1.98	5000.00	90 -	110	105.4	
39	K	1	45	5345.00	ppb	1.16	5000.00	90 -	110	106.9	
44	Ca	2	45	5359.00	ppb	2.18	5000.00	90 -	110	107.2	
47	Ti	1	45	200.50	ppb	2.68	200.00	90 -	110	100.3	
51	V	1	45	194.00	ppb	1.90	200.00	90 -	110	97.0	
52	Cr	1	45	196.10	ppb	1.58	200.00	90 -	110	98.1	
55	Mn	1	45	209.10	ppb	1.46	200.00	90 -	110	104.6	
56	Fe	1	72	5239.00	ppb	1.75	5000.00	90 -	110	104.8	
59	Co	1	72	201.00	ppb	1.29	200.00	90 -	110	100.5	
60	Ni	1	72	204.70	ppb	1.04	200.00	90 -	110	102.4	
63	Cu	1	72	201.10	ppb	1.14	200.00	90 -	110	100.6	
66	Zn	1	72	213.20	ppb	0.70	200.00	90 -	110	106.6	
75	As	1	72	208.80	ppb	1.12	200.00	90 -	110	104.4	
78	Se	1	72	219.40	ppb	1.31	200.00	90 -	110	109.7	
88	Sr	2	115	211.60	ppb	1.14	200.00	90 -	110	105.8	
95	Mo	2	115	205.70	ppb	0.86	200.00	90 -	110	102.9	
107	Ag	2	115	203.70	ppb	0.88	200.00	90 -	110	101.9	
111	Cd	2	115	200.60	ppb	0.48	200.00	90 -	110	100.3	
118	Sn	2	115	201.40	ppb	1.24	200.00	90 -	110	100.7	
121	Sb	2	115	201.30	ppb	0.58	200.00	90 -	110	100.7	
137	Ba	2	115	196.50	ppb	0.24	200.00	90 -	110	98.3	
205	Tl	2	209	209.80	ppb	0.86	200.00	90 -	110	104.9	
208	Pb	2	209	204.60	ppb	0.90	200.00	90 -	110	102.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4339621.00	1.01	4008511.30	108.3	70 -	120		
45	Sc	1	115396.53	0.65	100020.03	115.4	70 -	120		
45	Sc	2	5202667.00	0.94	4946391.00	105.2	70 -	120		
72	Ge	1	68838.63	0.57	61823.22	111.3	70 -	120		
115	In	2	5856992.00	0.77	5661857.00	103.4	70 -	120		
209	Bi	2	4739738.00	0.90	4553307.50	104.1	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\068LCVL.D\068LCVL.D#

Date Acquired:	Jan 29 2014 04:44 pm	Sample Name:	**LCVL1-140129**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	1897.00	ppb	0.56	5.00	70 -	130	######	Fail
9	Be	2	45	1.17	ppb	1.34	1.00	70 -	130	116.7	
11	B	2	45	21.75	ppb	1.15	20.00	70 -	130	108.8	
23	Na	1	45	106.50	ppb	1.33	100.00	70 -	130	106.5	
24	Mg	1	45	101.30	ppb	0.96	100.00	70 -	130	101.3	
27	Al	1	45	109.90	ppb	4.64	100.00	70 -	130	109.9	
39	K	1	45	111.10	ppb	4.27	100.00	70 -	130	111.1	
44	Ca	2	45	108.20	ppb	3.06	100.00	70 -	130	108.2	
47	Ti	1	45	4.97	ppb	11.04	5.00	70 -	130	99.4	
51	V	1	45	1.06	ppb	2.18	1.00	70 -	130	105.8	
52	Cr	1	45	4.96	ppb	4.64	5.00	70 -	130	99.1	
55	Mn	1	45	5.48	ppb	2.42	5.00	70 -	130	109.7	
56	Fe	1	72	107.10	ppb	1.45	100.00	70 -	130	107.1	
59	Co	1	72	5.19	ppb	1.77	5.00	70 -	130	103.8	
60	Ni	1	72	5.36	ppb	2.33	5.00	70 -	130	107.2	
63	Cu	1	72	5.09	ppb	2.93	5.00	70 -	130	101.8	
66	Zn	1	72	5.17	ppb	8.01	5.00	70 -	130	103.4	
75	As	1	72	5.57	ppb	2.85	5.00	70 -	130	111.4	
78	Se	1	72	5.87	ppb	1.73	5.00	70 -	130	117.3	
88	Sr	2	115	5.23	ppb	1.23	5.00	70 -	130	104.7	
95	Mo	2	115	4.72	ppb	3.75	5.00	70 -	130	94.4	
107	Ag	2	115	2.08	ppb	1.80	2.00	70 -	130	103.8	
111	Cd	2	115	1.10	ppb	5.22	1.00	70 -	130	110.0	
118	Sn	2	115	5.15	ppb	2.07	5.00	70 -	130	102.9	
121	Sb	2	115	2.25	ppb	1.31	2.00	70 -	130	112.3	
137	Ba	2	115	5.12	ppb	0.31	5.00	70 -	130	102.4	
205	Tl	2	209	1.09	ppb	1.12	1.00	70 -	130	109.1	
208	Pb	2	209	1.07	ppb	4.17	1.00	70 -	130	106.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4333198.00	1.16	4008511.30	108.1	70 -	120		
45	Sc	1	114003.41	1.01	100020.03	114.0	70 -	120		
45	Sc	2	5102094.00	0.98	4946391.00	103.1	70 -	120		
72	Ge	1	68230.43	1.15	61823.22	110.4	70 -	120		
115	In	2	5803576.50	0.76	5661857.00	102.5	70 -	120		
209	Bi	2	4725046.00	0.49	4553307.50	103.8	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\070_CCB.D\070_CCB.D#

Date Acquired:	Jan 29 2014 04:56 pm	Sample Name:	**CCB1-140129**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	2506.000	ppb	0.60	2.00	2.00	Failsoil
9	Be	2	45	0.022	ppb	11.02	0.10	0.30	
11	B	2	45	0.100	ppb	1.89	10.00	10.00	
23	Na	1	45	0.571	ppb	2.53	50.00	#####	
24	Mg	1	45	-2.764	ppb	16.50	50.00	#####	
27	Al	1	45	-1.594	ppb	10.92	50.00	10.00	
39	K	1	45	1.043	ppb	5.91	50.00	#####	
44	Ca	2	45	2.061	ppb	2.65	50.00	#####	
47	Ti	1	45	-0.032	ppb	0.00	4.00	3.00	
51	V	1	45	0.054	ppb	9.37	4.00	3.00	
52	Cr	1	45	0.045	ppb	17.40	2.00	2.00	
55	Mn	1	45	0.011	ppb	20.41	2.00	3.00	
56	Fe	1	72	-1.030	ppb	23.17	50.00	50.00	
59	Co	1	72	0.008	ppb	34.12	2.00	3.00	
60	Ni	1	72	-0.011	ppb	56.97	2.00	3.00	
63	Cu	1	72	-0.032	ppb	2.95	2.00	2.00	
66	Zn	1	72	-0.256	ppb	11.26	4.00	2.00	
75	As	1	72	0.023	ppb	16.14	2.00	2.00	
78	Se	1	72	0.074	ppb	34.41	0.60	2.00	
88	Sr	2	115	0.004	ppb	0.84	4.00	3.00	
95	Mo	2	115	-0.215	ppb	18.87	2.00	2.00	
107	Ag	2	115	0.013	ppb	16.67	0.40	1.00	
111	Cd	2	115	0.011	ppb	78.01	0.40	0.30	
118	Sn	2	115	-0.054	ppb	9.01	4.00	3.00	
121	Sb	2	115	0.096	ppb	13.27	2.00	0.80	
137	Ba	2	115	0.002	ppb	33.76	2.00	3.00	
205	Tl	2	209	0.019	ppb	7.20	2.00	0.50	
208	Pb	2	209	0.000	ppb	7.64	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4363109.50	0.43	4008511.30	108.8	70 - 120	
45	Sc	1	113738.85	1.49	100020.03	113.7	70 - 120	
45	Sc	2	5054516.50	0.98	4946391.00	102.2	70 - 120	
72	Ge	1	67827.76	1.47	61823.22	109.7	70 - 120	
115	In	2	5708110.00	0.57	5661857.00	100.8	70 - 120	
209	Bi	2	4718505.50	0.88	4553307.50	103.6	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\071SMPL.D\071SMPL.D#

Date Acquired:	Jan 29 2014 05:02 pm	Sample Name:	**1401180-03A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	8161.000	ppb	#REF!	2.14	2000.00	OUTCAL
9	Be	2	45	0.019	ppb	#REF!	13.47	2000.00	ND
11	B	2	45	227.600	ppb	#REF!	1.75	2000.00	>RL
23	Na	1	45	42200.000	ppb	#REF!	1.28	25000.00	OUTCAL
24	Mg	1	45	6861.000	ppb	#REF!	1.61	25000.00	>RL
27	Al	1	45	18.540	ppb	#REF!	3.58	10000.00	J
39	K	1	45	3855.000	ppb	#REF!	1.51	25000.00	>RL
44	Ca	2	45	115300.000	ppb	#REF!	1.87	25000.00	OUTCAL
47	Ti	1	45	0.356	ppb	#REF!	12.37	2000.00	ND
51	V	1	45	0.105	ppb	#REF!	20.84	2000.00	ND
52	Cr	1	45	0.057	ppb	#REF!	14.08	2000.00	ND
55	Mn	1	45	1072.000	ppb	#REF!	1.88	2000.00	>RL
56	Fe	1	72	3160.000	ppb	#REF!	2.52	10000.00	>RL
59	Co	1	72	1.372	ppb	#REF!	1.82	2000.00	ND
60	Ni	1	72	1.608	ppb	#REF!	0.93	2000.00	ND
63	Cu	1	72	0.824	ppb	#REF!	3.87	2000.00	ND
66	Zn	1	72	2.854	ppb	#REF!	5.47	2000.00	J
75	As	1	72	43.720	ppb	#REF!	2.14	2000.00	>RL
78	Se	1	72	0.000	ppb	#REF!	22.44	2000.00	ND
88	Sr	2	115	329.200	ppb	#REF!	1.89	2000.00	>RL
95	Mo	2	115	16.700	ppb	#REF!	3.13	2000.00	>RL
107	Ag	2	115	0.022	ppb	#REF!	25.44	500.00	ND
111	Cd	2	115	0.026	ppb	#REF!	66.35	2000.00	ND
118	Sn	2	115	-0.098	ppb	#REF!	7.05	2000.00	ND
121	Sb	2	115	1.212	ppb	#REF!	3.78	500.00	J
137	Ba	2	115	155.200	ppb	#REF!	2.22	2000.00	>RL
205	Tl	2	209	0.009	ppb	#REF!	8.58	2000.00	ND
208	Pb	2	209	0.074	ppb	#REF!	4.24	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4148075.80	0.98	4008511.30	103.5	70 - 120	
45	Sc	1	113551.76	1.88	100020.03	113.5	70 - 120	
45	Sc	2	5107717.50	1.36	4946391.00	103.3	70 - 120	
72	Ge	1	67217.53	1.26	61823.22	108.7	70 - 120	
115	In	2	5695569.50	2.01	5661857.00	100.6	70 - 120	
209	Bi	2	4527868.50	2.30	4553307.50	99.4	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\072SMPL.D\072SMPL.D#

Date Acquired:	Jan 29 2014 05:08 pm	Sample Name:	**1401180-05A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	29210.000	ppb	#REF!	1.45	2000.00	OUTCAL
9	Be	2	45	0.018	ppb	#REF!	0.00	2000.00	ND
11	B	2	45	385.500	ppb	#REF!	2.41	2000.00	>RL
23	Na	1	45	144000.000	ppb	#REF!	2.89	25000.00	OUTCAL
24	Mg	1	45	7020.000	ppb	#REF!	3.52	25000.00	>RL
27	Al	1	45	89.960	ppb	#REF!	3.50	10000.00	>RL
39	K	1	45	2443.000	ppb	#REF!	3.46	25000.00	>RL
44	Ca	2	45	104600.000	ppb	#REF!	2.99	25000.00	OUTCAL
47	Ti	1	45	0.973	ppb	#REF!	43.52	2000.00	ND
51	V	1	45	1.509	ppb	#REF!	5.19	2000.00	ND
52	Cr	1	45	0.130	ppb	#REF!	8.38	2000.00	ND
55	Mn	1	45	9.007	ppb	#REF!	4.80	2000.00	J
56	Fe	1	72	47.800	ppb	#REF!	4.92	10000.00	ND
59	Co	1	72	0.134	ppb	#REF!	6.10	2000.00	ND
60	Ni	1	72	1.476	ppb	#REF!	12.00	2000.00	ND
63	Cu	1	72	2.350	ppb	#REF!	3.28	2000.00	J
66	Zn	1	72	8.580	ppb	#REF!	2.63	2000.00	>RL
75	As	1	72	4.124	ppb	#REF!	6.41	2000.00	J
78	Se	1	72	44.790	ppb	#REF!	3.70	2000.00	>RL
88	Sr	2	115	346.500	ppb	#REF!	2.68	2000.00	>RL
95	Mo	2	115	90.810	ppb	#REF!	2.31	2000.00	>RL
107	Ag	2	115	0.024	ppb	#REF!	32.39	500.00	ND
111	Cd	2	115	0.018	ppb	#REF!	198.73	2000.00	ND
118	Sn	2	115	-0.119	ppb	#REF!	18.19	2000.00	ND
121	Sb	2	115	822.600	ppb	#REF!	3.42	500.00	OUTCAL
137	Ba	2	115	48.350	ppb	#REF!	2.76	2000.00	>RL
205	Tl	2	209	0.019	ppb	#REF!	8.25	2000.00	ND
208	Pb	2	209	0.229	ppb	#REF!	4.69	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4406118.00	1.53	4008511.30	109.9	70 - 120	
45	Sc	1	106312.74	3.91	100020.03	106.3	70 - 120	
45	Sc	2	5333032.00	2.26	4946391.00	107.8	70 - 120	
72	Ge	1	62862.54	3.06	61823.22	101.7	70 - 120	
115	In	2	5808770.50	2.18	5661857.00	102.6	70 - 120	
209	Bi	2	4570515.50	1.65	4553307.50	100.4	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\073SMPL.D\073SMPL.D#

Date Acquired:	Jan 29 2014 05:14 pm	Sample Name:	**1401180-06A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	24120.000	ppb	#REF!	0.18	2000.00	OUTCAL
9	Be	2	45	0.020	ppb	#REF!	38.42	2000.00	ND
11	B	2	45	165.900	ppb	#REF!	0.46	2000.00	>RL
23	Na	1	45	71200.000	ppb	#REF!	1.58	25000.00	OUTCAL
24	Mg	1	45	18310.000	ppb	#REF!	2.06	25000.00	>RL
27	Al	1	45	70.020	ppb	#REF!	3.36	10000.00	>RL
39	K	1	45	5472.000	ppb	#REF!	1.41	25000.00	>RL
44	Ca	2	45	105500.000	ppb	#REF!	1.65	25000.00	OUTCAL
47	Ti	1	45	0.803	ppb	#REF!	17.32	2000.00	ND
51	V	1	45	3.295	ppb	#REF!	2.85	2000.00	J
52	Cr	1	45	0.290	ppb	#REF!	8.68	2000.00	ND
55	Mn	1	45	2.167	ppb	#REF!	5.01	2000.00	ND
56	Fe	1	72	12.910	ppb	#REF!	1.04	10000.00	ND
59	Co	1	72	0.991	ppb	#REF!	4.05	2000.00	ND
60	Ni	1	72	12.600	ppb	#REF!	1.34	2000.00	>RL
63	Cu	1	72	23.510	ppb	#REF!	1.73	2000.00	>RL
66	Zn	1	72	77.810	ppb	#REF!	2.58	2000.00	>RL
75	As	1	72	80.270	ppb	#REF!	0.79	2000.00	>RL
78	Se	1	72	86.050	ppb	#REF!	1.95	2000.00	>RL
88	Sr	2	115	481.100	ppb	#REF!	1.13	2000.00	>RL
95	Mo	2	115	174.500	ppb	#REF!	1.12	2000.00	>RL
107	Ag	2	115	0.018	ppb	#REF!	18.74	500.00	ND
111	Cd	2	115	0.066	ppb	#REF!	82.33	2000.00	ND
118	Sn	2	115	-0.121	ppb	#REF!	12.77	2000.00	ND
121	Sb	2	115	624.000	ppb	#REF!	1.56	500.00	OUTCAL
137	Ba	2	115	95.220	ppb	#REF!	1.61	2000.00	>RL
205	Tl	2	209	0.074	ppb	#REF!	8.97	2000.00	ND
208	Pb	2	209	0.511	ppb	#REF!	1.19	2000.00	J

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4092720.00	0.63	4008511.30	102.1	70 - 120	
45	Sc	1	113173.10	0.93	100020.03	113.2	70 - 120	
45	Sc	2	5058759.50	0.63	4946391.00	102.3	70 - 120	
72	Ge	1	67267.51	1.04	61823.22	108.8	70 - 120	
115	In	2	5503348.00	0.56	5661857.00	97.2	70 - 120	
209	Bi	2	4341899.00	0.49	4553307.50	95.4	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\074SMPL.D\074SMPL.D#

Date Acquired:	Jan 29 2014 05:20 pm	Sample Name:	**1401180-07A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	25110.000	ppb	#REF!	0.78	2000.00	OUTCAL
9	Be	2	45	0.004	ppb	#REF!	27.55	2000.00	ND
11	B	2	45	171.000	ppb	#REF!	2.09	2000.00	>RL
23	Na	1	45	71670.000	ppb	#REF!	1.86	25000.00	OUTCAL
24	Mg	1	45	18530.000	ppb	#REF!	0.98	25000.00	>RL
27	Al	1	45	75.740	ppb	#REF!	2.79	10000.00	>RL
39	K	1	45	5491.000	ppb	#REF!	1.57	25000.00	>RL
44	Ca	2	45	106800.000	ppb	#REF!	1.52	25000.00	OUTCAL
47	Ti	1	45	0.673	ppb	#REF!	48.50	2000.00	ND
51	V	1	45	3.371	ppb	#REF!	3.46	2000.00	J
52	Cr	1	45	0.261	ppb	#REF!	14.53	2000.00	ND
55	Mn	1	45	2.024	ppb	#REF!	7.80	2000.00	ND
56	Fe	1	72	12.510	ppb	#REF!	0.36	10000.00	ND
59	Co	1	72	0.980	ppb	#REF!	4.07	2000.00	ND
60	Ni	1	72	12.580	ppb	#REF!	3.75	2000.00	>RL
63	Cu	1	72	23.470	ppb	#REF!	1.78	2000.00	>RL
66	Zn	1	72	77.090	ppb	#REF!	2.95	2000.00	>RL
75	As	1	72	80.930	ppb	#REF!	1.65	2000.00	>RL
78	Se	1	72	85.240	ppb	#REF!	2.75	2000.00	>RL
88	Sr	2	115	485.300	ppb	#REF!	0.83	2000.00	>RL
95	Mo	2	115	177.300	ppb	#REF!	0.98	2000.00	>RL
107	Ag	2	115	0.024	ppb	#REF!	3.58	500.00	ND
111	Cd	2	115	0.071	ppb	#REF!	77.58	2000.00	ND
118	Sn	2	115	-0.133	ppb	#REF!	8.15	2000.00	ND
121	Sb	2	115	632.300	ppb	#REF!	0.62	500.00	OUTCAL
137	Ba	2	115	95.870	ppb	#REF!	0.68	2000.00	>RL
205	Tl	2	209	0.074	ppb	#REF!	13.13	2000.00	ND
208	Pb	2	209	0.764	ppb	#REF!	0.35	2000.00	J

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4220696.00	1.18	4008511.30	105.3	70 - 120	
45	Sc	1	111976.06	1.14	100020.03	112.0	70 - 120	
45	Sc	2	5205107.00	0.83	4946391.00	105.2	70 - 120	
72	Ge	1	66292.52	1.37	61823.22	107.2	70 - 120	
115	In	2	5700208.50	1.24	5661857.00	100.7	70 - 120	
209	Bi	2	4508627.00	0.97	4553307.50	99.0	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\075SMPL.D\075SMPL.D#

Date Acquired:	Jan 29 2014 05:26 pm	Sample Name:	**1401180-08A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	1403.000	ppb	#REF!	0.37	2000.00	>RL
9	Be	2	45	0.004	ppb	#REF!	34.80	2000.00	ND
11	B	2	45	42.450	ppb	#REF!	1.36	2000.00	>RL
23	Na	1	45	144.700	ppb	#REF!	5.33	25000.00	>RL
24	Mg	1	45	19.100	ppb	#REF!	12.24	25000.00	ND
27	Al	1	45	67.650	ppb	#REF!	3.72	10000.00	>RL
39	K	1	45	3.111	ppb	#REF!	4.27	25000.00	ND
44	Ca	2	45	165.300	ppb	#REF!	5.13	25000.00	>RL
47	Ti	1	45	0.226	ppb	#REF!	75.51	2000.00	ND
51	V	1	45	0.135	ppb	#REF!	5.97	2000.00	ND
52	Cr	1	45	0.123	ppb	#REF!	13.70	2000.00	ND
55	Mn	1	45	0.194	ppb	#REF!	7.29	2000.00	ND
56	Fe	1	72	1.614	ppb	#REF!	5.77	10000.00	ND
59	Co	1	72	-0.003	ppb	#REF!	79.90	2000.00	ND
60	Ni	1	72	0.026	ppb	#REF!	9.32	2000.00	ND
63	Cu	1	72	0.109	ppb	#REF!	5.99	2000.00	ND
66	Zn	1	72	2.440	ppb	#REF!	9.46	2000.00	J
75	As	1	72	0.994	ppb	#REF!	1.33	2000.00	ND
78	Se	1	72	-0.031	ppb	#REF!	21.03	2000.00	ND
88	Sr	2	115	0.564	ppb	#REF!	10.42	2000.00	ND
95	Mo	2	115	0.362	ppb	#REF!	7.06	2000.00	ND
107	Ag	2	115	0.008	ppb	#REF!	25.29	500.00	ND
111	Cd	2	115	0.006	ppb	#REF!	31.71	2000.00	ND
118	Sn	2	115	-0.160	ppb	#REF!	6.18	2000.00	ND
121	Sb	2	115	0.454	ppb	#REF!	12.56	500.00	ND
137	Ba	2	115	0.368	ppb	#REF!	6.04	2000.00	ND
205	Tl	2	209	-0.016	ppb	#REF!	4.34	2000.00	ND
208	Pb	2	209	0.023	ppb	#REF!	2.26	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4596467.00	0.79	4008511.30	114.7	70 - 120	
45	Sc	1	123205.84	1.38	100020.03	123.2	70 - 120	ISFail
45	Sc	2	5518201.50	1.20	4946391.00	111.6	70 - 120	
72	Ge	1	74272.02	0.65	61823.22	120.1	70 - 120	ISFail
115	In	2	6209317.00	0.46	5661857.00	109.7	70 - 120	
209	Bi	2	5058364.50	0.69	4553307.50	111.1	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\076SMPL.D\076SMPL.D#

Date Acquired:	Jan 29 2014 05:32 pm	Sample Name:	**1401180-09A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	40680.000	ppb	#REF!	0.87	2000.00	OUTCAL
9	Be	2	45	0.017	ppb	#REF!	0.00	2000.00	ND
11	B	2	45	302.000	ppb	#REF!	2.11	2000.00	>RL
23	Na	1	45	24450.000	ppb	#REF!	1.06	25000.00	>RL
24	Mg	1	45	5359.000	ppb	#REF!	0.93	25000.00	>RL
27	Al	1	45	103.600	ppb	#REF!	1.58	10000.00	>RL
39	K	1	45	1044.000	ppb	#REF!	0.10	25000.00	>RL
44	Ca	2	45	62210.000	ppb	#REF!	1.24	25000.00	OUTCAL
47	Ti	1	45	1.044	ppb	#REF!	18.88	2000.00	ND
51	V	1	45	1.724	ppb	#REF!	5.75	2000.00	ND
52	Cr	1	45	0.421	ppb	#REF!	4.90	2000.00	ND
55	Mn	1	45	104.200	ppb	#REF!	0.81	2000.00	>RL
56	Fe	1	72	514.000	ppb	#REF!	1.36	10000.00	>RL
59	Co	1	72	0.872	ppb	#REF!	5.20	2000.00	ND
60	Ni	1	72	1.292	ppb	#REF!	5.19	2000.00	ND
63	Cu	1	72	1.130	ppb	#REF!	2.58	2000.00	ND
66	Zn	1	72	32.050	ppb	#REF!	1.38	2000.00	>RL
75	As	1	72	2.284	ppb	#REF!	3.44	2000.00	J
78	Se	1	72	0.010	ppb	#REF!	3.69	2000.00	ND
88	Sr	2	115	685.300	ppb	#REF!	0.36	2000.00	>RL
95	Mo	2	115	0.263	ppb	#REF!	7.56	2000.00	ND
107	Ag	2	115	0.010	ppb	#REF!	20.07	500.00	ND
111	Cd	2	115	0.054	ppb	#REF!	27.20	2000.00	ND
118	Sn	2	115	2.700	ppb	#REF!	3.30	2000.00	ND
121	Sb	2	115	0.445	ppb	#REF!	19.94	500.00	ND
137	Ba	2	115	15.130	ppb	#REF!	1.34	2000.00	>RL
205	Tl	2	209	-0.003	ppb	#REF!	16.39	2000.00	ND
208	Pb	2	209	3.620	ppb	#REF!	1.50	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4471535.50	0.83	4008511.30	111.6	70 - 120	
45	Sc	1	117141.99	1.11	100020.03	117.1	70 - 120	
45	Sc	2	5428597.50	1.50	4946391.00	109.7	70 - 120	
72	Ge	1	70021.06	0.89	61823.22	113.3	70 - 120	
115	In	2	6033881.50	1.07	5661857.00	106.6	70 - 120	
209	Bi	2	4766540.50	0.74	4553307.50	104.7	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\077SMPL.D\077SMPL.D#

Date Acquired:	Jan 29 2014 05:38 pm	Sample Name:	**1401180-10A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	25150.000	ppb	#REF!	1.23	2000.00	OUTCAL
9	Be	2	45	0.003	ppb	#REF!	14.52	2000.00	ND
11	B	2	45	201.900	ppb	#REF!	3.00	2000.00	>RL
23	Na	1	45	41210.000	ppb	#REF!	1.16	25000.00	OUTCAL
24	Mg	1	45	7204.000	ppb	#REF!	1.02	25000.00	>RL
27	Al	1	45	45.290	ppb	#REF!	4.38	10000.00	>RL
39	K	1	45	6134.000	ppb	#REF!	1.16	25000.00	>RL
44	Ca	2	45	186600.000	ppb	#REF!	1.95	25000.00	OUTCAL
47	Ti	1	45	0.411	ppb	#REF!	81.50	2000.00	ND
51	V	1	45	4.125	ppb	#REF!	1.95	2000.00	J
52	Cr	1	45	0.183	ppb	#REF!	3.81	2000.00	ND
55	Mn	1	45	5.868	ppb	#REF!	1.64	2000.00	J
56	Fe	1	72	44.020	ppb	#REF!	2.38	10000.00	ND
59	Co	1	72	0.135	ppb	#REF!	5.05	2000.00	ND
60	Ni	1	72	0.407	ppb	#REF!	5.97	2000.00	ND
63	Cu	1	72	0.211	ppb	#REF!	0.97	2000.00	ND
66	Zn	1	72	1.876	ppb	#REF!	11.31	2000.00	ND
75	As	1	72	2.238	ppb	#REF!	2.93	2000.00	J
78	Se	1	72	85.140	ppb	#REF!	2.76	2000.00	>RL
88	Sr	2	115	439.700	ppb	#REF!	2.39	2000.00	>RL
95	Mo	2	115	2.930	ppb	#REF!	2.08	2000.00	J
107	Ag	2	115	0.016	ppb	#REF!	3.36	500.00	ND
111	Cd	2	115	0.016	ppb	#REF!	60.22	2000.00	ND
118	Sn	2	115	-0.163	ppb	#REF!	9.27	2000.00	ND
121	Sb	2	115	0.385	ppb	#REF!	4.86	500.00	ND
137	Ba	2	115	54.770	ppb	#REF!	2.02	2000.00	>RL
205	Tl	2	209	-0.013	ppb	#REF!	14.61	2000.00	ND
208	Pb	2	209	0.152	ppb	#REF!	6.22	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4248357.00	0.49	4008511.30	106.0	70 - 120	
45	Sc	1	121860.51	1.65	100020.03	121.8	70 - 120	ISFail
45	Sc	2	5290397.50	1.80	4946391.00	107.0	70 - 120	
72	Ge	1	71542.28	1.65	61823.22	115.7	70 - 120	
115	In	2	5854805.00	1.82	5661857.00	103.4	70 - 120	
209	Bi	2	4614536.50	1.46	4553307.50	101.3	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\080CCV1.D\080CCV1.D#

Date Acquired:	Jan 29 2014 05:56 pm	Sample Name:	**CCV2-140129**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	918.00	ppb	0.73	200.00	90 -	110	459.0	Fail
9	Be	2	45	228.00	ppb	0.07	200.00	90 -	110	114.0	Fail
11	B	2	45	221.10	ppb	0.66	200.00	90 -	110	110.6	Fail
23	Na	1	45	5493.00	ppb	0.66	5000.00	90 -	110	109.9	
24	Mg	1	45	5208.00	ppb	2.03	5000.00	90 -	110	104.2	
27	Al	1	45	5405.00	ppb	2.37	5000.00	90 -	110	108.1	
39	K	1	45	5462.00	ppb	1.19	5000.00	90 -	110	109.2	
44	Ca	2	45	5617.00	ppb	1.19	5000.00	90 -	110	112.3	Fail
47	Ti	1	45	206.70	ppb	1.18	200.00	90 -	110	103.4	
51	V	1	45	197.80	ppb	2.63	200.00	90 -	110	98.9	
52	Cr	1	45	201.90	ppb	1.93	200.00	90 -	110	101.0	
55	Mn	1	45	212.70	ppb	1.49	200.00	90 -	110	106.4	
56	Fe	1	72	5333.00	ppb	1.88	5000.00	90 -	110	106.7	
59	Co	1	72	204.50	ppb	1.42	200.00	90 -	110	102.3	
60	Ni	1	72	208.20	ppb	1.75	200.00	90 -	110	104.1	
63	Cu	1	72	203.50	ppb	1.44	200.00	90 -	110	101.8	
66	Zn	1	72	212.10	ppb	1.43	200.00	90 -	110	106.1	
75	As	1	72	212.50	ppb	1.58	200.00	90 -	110	106.3	
78	Se	1	72	222.00	ppb	2.85	200.00	90 -	110	111.0	Fail
88	Sr	2	115	219.80	ppb	0.78	200.00	90 -	110	109.9	
95	Mo	2	115	210.60	ppb	0.93	200.00	90 -	110	105.3	
107	Ag	2	115	202.80	ppb	0.63	200.00	90 -	110	101.4	
111	Cd	2	115	207.00	ppb	0.50	200.00	90 -	110	103.5	
118	Sn	2	115	205.40	ppb	0.75	200.00	90 -	110	102.7	
121	Sb	2	115	201.40	ppb	0.60	200.00	90 -	110	100.7	
137	Ba	2	115	201.50	ppb	0.26	200.00	90 -	110	100.8	
205	Tl	2	209	217.20	ppb	0.50	200.00	90 -	110	108.6	
208	Pb	2	209	210.60	ppb	0.64	200.00	90 -	110	105.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4278555.50	1.10	4008511.30	106.7	70 -	120		
45	Sc	1	113136.44	1.04	100020.03	113.1	70 -	120		
45	Sc	2	5173163.50	0.73	4946391.00	104.6	70 -	120		
72	Ge	1	67788.56	1.02	61823.22	109.6	70 -	120		
115	In	2	5765191.00	0.59	5661857.00	101.8	70 -	120		
209	Bi	2	4675917.00	0.28	4553307.50	102.7	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\081CCV1.D\081CCV1.D#

Date Acquired:	Jan 29 2014 06:02 pm	Sample Name:	**CCV2-140129**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	621.00	ppb	1.25	200.00	90 -	110	310.5	Fail
9	Be	2	45	219.90	ppb	1.12	200.00	90 -	110	110.0	
11	B	2	45	202.70	ppb	0.70	200.00	90 -	110	101.4	
23	Na	1	45	5146.00	ppb	0.66	5000.00	90 -	110	102.9	
24	Mg	1	45	4994.00	ppb	1.78	5000.00	90 -	110	99.9	
27	Al	1	45	5151.00	ppb	1.48	5000.00	90 -	110	103.0	
39	K	1	45	5207.00	ppb	1.14	5000.00	90 -	110	104.1	
44	Ca	2	45	5248.00	ppb	0.89	5000.00	90 -	110	105.0	
47	Ti	1	45	202.00	ppb	2.56	200.00	90 -	110	101.0	
51	V	1	45	189.90	ppb	1.93	200.00	90 -	110	95.0	
52	Cr	1	45	191.70	ppb	2.36	200.00	90 -	110	95.9	
55	Mn	1	45	208.10	ppb	1.93	200.00	90 -	110	104.1	
56	Fe	1	72	5081.00	ppb	1.82	5000.00	90 -	110	101.6	
59	Co	1	72	201.50	ppb	1.76	200.00	90 -	110	100.8	
60	Ni	1	72	204.90	ppb	2.14	200.00	90 -	110	102.5	
63	Cu	1	72	197.30	ppb	1.35	200.00	90 -	110	98.7	
66	Zn	1	72	208.40	ppb	1.81	200.00	90 -	110	104.2	
75	As	1	72	206.40	ppb	1.45	200.00	90 -	110	103.2	
78	Se	1	72	216.70	ppb	1.71	200.00	90 -	110	108.4	
88	Sr	2	115	210.40	ppb	0.84	200.00	90 -	110	105.2	
95	Mo	2	115	193.40	ppb	1.58	200.00	90 -	110	96.7	
107	Ag	2	115	193.10	ppb	0.85	200.00	90 -	110	96.6	
111	Cd	2	115	202.30	ppb	1.32	200.00	90 -	110	101.2	
118	Sn	2	115	199.40	ppb	1.41	200.00	90 -	110	99.7	
121	Sb	2	115	177.30	ppb	1.10	200.00	90 -	110	88.7	Fail
137	Ba	2	115	195.40	ppb	1.26	200.00	90 -	110	97.7	
205	Tl	2	209	205.30	ppb	1.76	200.00	90 -	110	102.7	
208	Pb	2	209	197.90	ppb	2.53	200.00	90 -	110	99.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4366645.50	0.71	4008511.30	108.9	70 -	120		
45	Sc	1	116706.88	1.71	100020.03	116.7	70 -	120		
45	Sc	2	5306247.50	0.56	4946391.00	107.3	70 -	120		
72	Ge	1	69678.95	1.81	61823.22	112.7	70 -	120		
115	In	2	5913290.00	1.44	5661857.00	104.4	70 -	120		
209	Bi	2	4798470.50	0.96	4553307.50	105.4	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\086LCVL.D\086LCVL.D#

Date Acquired:	Jan 29 2014 06:33 pm	Sample Name:	**LCVL2-140129**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	1365.00	ppb	0.71	5.00	70 -	130	######	Fail
9	Be	2	45	1.17	ppb	5.05	1.00	70 -	130	117.3	
11	B	2	45	22.40	ppb	1.38	20.00	70 -	130	112.0	
23	Na	1	45	109.20	ppb	1.92	100.00	70 -	130	109.2	
24	Mg	1	45	103.40	ppb	4.07	100.00	70 -	130	103.4	
27	Al	1	45	114.00	ppb	3.26	100.00	70 -	130	114.0	
39	K	1	45	109.30	ppb	0.58	100.00	70 -	130	109.3	
44	Ca	2	45	110.40	ppb	2.82	100.00	70 -	130	110.4	
47	Ti	1	45	5.55	ppb	13.49	5.00	70 -	130	110.9	
51	V	1	45	1.14	ppb	7.39	1.00	70 -	130	114.2	
52	Cr	1	45	5.06	ppb	2.68	5.00	70 -	130	101.2	
55	Mn	1	45	5.71	ppb	3.26	5.00	70 -	130	114.3	
56	Fe	1	72	110.10	ppb	1.73	100.00	70 -	130	110.1	
59	Co	1	72	5.29	ppb	2.16	5.00	70 -	130	105.9	
60	Ni	1	72	5.60	ppb	3.19	5.00	70 -	130	111.9	
63	Cu	1	72	5.30	ppb	2.17	5.00	70 -	130	105.9	
66	Zn	1	72	5.27	ppb	9.45	5.00	70 -	130	105.4	
75	As	1	72	5.58	ppb	1.64	5.00	70 -	130	111.6	
78	Se	1	72	5.78	ppb	6.66	5.00	70 -	130	115.6	
88	Sr	2	115	5.33	ppb	1.80	5.00	70 -	130	106.5	
95	Mo	2	115	4.74	ppb	2.63	5.00	70 -	130	94.8	
107	Ag	2	115	2.18	ppb	2.00	2.00	70 -	130	108.9	
111	Cd	2	115	1.20	ppb	3.98	1.00	70 -	130	120.3	
118	Sn	2	115	5.23	ppb	1.17	5.00	70 -	130	104.5	
121	Sb	2	115	2.23	ppb	0.79	2.00	70 -	130	111.4	
137	Ba	2	115	5.14	ppb	2.49	5.00	70 -	130	102.8	
205	Tl	2	209	1.07	ppb	2.46	1.00	70 -	130	106.6	
208	Pb	2	209	1.05	ppb	3.63	1.00	70 -	130	105.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4658562.50	0.41	4008511.30	116.2	70 -	120		
45	Sc	1	123451.66	1.62	100020.03	123.4	70 -	120		ISFail
45	Sc	2	5567937.00	1.10	4946391.00	112.6	70 -	120		
72	Ge	1	74105.77	0.99	61823.22	119.9	70 -	120		
115	In	2	6238653.00	0.82	5661857.00	110.2	70 -	120		
209	Bi	2	5100466.00	0.74	4553307.50	112.0	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\088_CCB.D\088_CCB.D#

Date Acquired:	Jan 29 2014 06:45 pm	Sample Name:	**CCB2-140129**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	1739.000	ppb	0.68	2.00	2.00	Failsoil
9	Be	2	45	0.014	ppb	23.23	0.10	0.30	
11	B	2	45	-0.091	ppb	1.65	10.00	10.00	
23	Na	1	45	-0.213	ppb	4.11	50.00	#####	
24	Mg	1	45	-2.601	ppb	17.40	50.00	#####	
27	Al	1	45	-1.701	ppb	10.62	50.00	10.00	
39	K	1	45	0.365	ppb	2.81	50.00	#####	
44	Ca	2	45	0.645	ppb	6.56	50.00	#####	
47	Ti	1	45	-0.032	ppb	0.00	4.00	3.00	
51	V	1	45	0.106	ppb	10.14	4.00	3.00	
52	Cr	1	45	0.037	ppb	3.65	2.00	2.00	
55	Mn	1	45	0.004	ppb	13.48	2.00	3.00	
56	Fe	1	72	-0.910	ppb	23.90	50.00	50.00	
59	Co	1	72	0.005	ppb	12.49	2.00	3.00	
60	Ni	1	72	-0.001	ppb	11.18	2.00	3.00	
63	Cu	1	72	-0.055	ppb	11.59	2.00	2.00	
66	Zn	1	72	0.038	ppb	7.25	4.00	2.00	
75	As	1	72	0.007	ppb	5.80	2.00	2.00	
78	Se	1	72	-0.310	ppb	24.35	0.60	2.00	
88	Sr	2	115	0.014	ppb	12.48	4.00	3.00	
95	Mo	2	115	-0.240	ppb	4.25	2.00	2.00	
107	Ag	2	115	0.009	ppb	28.35	0.40	1.00	
111	Cd	2	115	-0.001	ppb	22.03	0.40	0.30	
118	Sn	2	115	-0.106	ppb	12.96	4.00	3.00	
121	Sb	2	115	0.098	ppb	13.98	2.00	0.80	
137	Ba	2	115	0.003	ppb	27.70	2.00	3.00	
205	Tl	2	209	0.007	ppb	15.35	2.00	0.50	
208	Pb	2	209	-0.003	ppb	6.84	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4762214.50	0.63	4008511.30	118.8	70 - 120	
45	Sc	1	123568.84	0.63	100020.03	123.5	70 - 120	ISFail
45	Sc	2	5569066.50	0.45	4946391.00	112.6	70 - 120	
72	Ge	1	73882.77	0.40	61823.22	119.5	70 - 120	
115	In	2	6270783.50	0.22	5661857.00	110.8	70 - 120	
209	Bi	2	5131951.00	0.65	4553307.50	112.7	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\089__PB.D\089__PB.D#

Date Acquired:	Jan 29 2014 06:51 pm	Sample Name:	**MB-61561**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLK6020A_S
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.	RSD(%)	MDL	RL	Flag
7	Li	2	45	2198.000 ppb	0.60	2.0	8.00	Fail
9	Be	2	45	0.003 ppb	25.79	0.8	0.32	
11	B	2	45	-0.305 ppb	2.88	10.0	30.00	
23	Na	1	45	3.228 ppb	1.63	50.0	50.00	
24	Mg	1	45	-0.007 ppb	13.48	50.0	50.00	
27	Al	1	45	8.159 ppb	11.11	50.0	50.00	
39	K	1	45	1.935 ppb	3.41	50.0	50.00	
44	Ca	2	45	17.530 ppb	2.03	50.0	50.00	
47	Ti	1	45	0.119 ppb	49.99	4.0	10.00	
51	V	1	45	0.048 ppb	19.02	4.0	10.00	
52	Cr	1	45	0.963 ppb	21.58	2.0	8.00	
55	Mn	1	45	0.185 ppb	10.26	2.0	8.00	
56	Fe	1	72	2.540 ppb	3.13	50.0	50.00	
59	Co	1	72	0.004 ppb	41.42	2.0	8.00	
60	Ni	1	72	0.054 ppb	4.82	2.0	8.00	
63	Cu	1	72	-0.024 ppb	0.00	2.0	8.00	
66	Zn	1	72	1.024 ppb	12.08	4.0	10.00	
75	As	1	72	-0.001 ppb	4.61	2.0	4.00	
78	Se	1	72	-0.250 ppb	29.17	0.6	2.00	
88	Sr	2	115	0.015 ppb	7.78	4.0	10.00	
95	Mo	2	115	-0.268 ppb	6.81	2.0	8.00	
107	Ag	2	115	0.007 ppb	2.28	0.4	0.80	
111	Cd	2	115	-0.009 ppb	673.65	0.4	1.20	
118	Sn	2	115	4.574 ppb	1.34	4.0	10.00	J
121	Sb	2	115	0.062 ppb	10.39	2.0	4.00	
137	Ba	2	115	0.048 ppb	12.88	2.0	8.00	
205	Tl	2	209	0.003 ppb	4.24	2.0	4.00	
208	Pb	2	209	0.061 ppb	4.94	0.4	1.20	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4861377.00	0.42	4008511.30	121.3	70 - 120	ISFail
45	Sc	1	125794.43	0.77	100020.03	125.8	70 - 120	ISFail
45	Sc	2	5703352.50	1.47	4946391.00	115.3	70 - 120	
72	Ge	1	74800.05	1.78	61823.22	121.0	70 - 120	ISFail
115	In	2	6373456.00	0.46	5661857.00	112.6	70 - 120	
209	Bi	2	5156797.00	1.11	4553307.50	113.3	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\090_LCS.D\090_LCS.D#

Date Acquired:	Jan 29 2014 06:57 pm	Sample Name:	**LCS-61561**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS 6020A_S
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	261500.00	ppb	1.13	200.00	80 -	120	######	Fail
9	Be	2	45	219.20	ppb	0.72	200.00	80 -	120	109.6	
11	B	2	45	213.00	ppb	1.56	200.00	80 -	120	106.5	
23	Na	1	45	1063.00	ppb	1.35	1000.00	80 -	120	106.3	
24	Mg	1	45	1045.00	ppb	1.08	1000.00	80 -	120	104.5	
27	Al	1	45	1070.00	ppb	2.02	1000.00	80 -	120	107.0	
39	K	1	45	1119.00	ppb	1.39	1000.00	80 -	120	111.9	
44	Ca	2	45	1146.00	ppb	0.68	1000.00	80 -	120	114.6	
47	Ti	1	45	207.90	ppb	2.17	200.00	80 -	120	104.0	
51	V	1	45	197.00	ppb	1.91	200.00	80 -	120	98.5	
52	Cr	1	45	196.60	ppb	1.11	200.00	80 -	120	98.3	
55	Mn	1	45	215.50	ppb	2.08	200.00	80 -	120	107.8	
56	Fe	1	72	1055.00	ppb	2.25	1000.00	80 -	120	105.5	
59	Co	1	72	206.30	ppb	1.58	200.00	80 -	120	103.2	
60	Ni	1	72	210.90	ppb	1.16	200.00	80 -	120	105.5	
63	Cu	1	72	203.70	ppb	1.12	200.00	80 -	120	101.9	
66	Zn	1	72	203.70	ppb	0.71	200.00	80 -	120	101.9	
75	As	1	72	202.30	ppb	1.64	200.00	80 -	120	101.2	
78	Se	1	72	204.70	ppb	2.24	200.00	80 -	120	102.4	
88	Sr	2	115	214.20	ppb	0.78	200.00	80 -	120	107.1	
95	Mo	2	115	207.00	ppb	0.47	200.00	80 -	120	103.5	
107	Ag	2	115	208.10	ppb	0.49	200.00	80 -	120	104.1	
111	Cd	2	115	199.50	ppb	1.21	200.00	80 -	120	99.8	
118	Sn	2	115	210.30	ppb	0.80	200.00	80 -	120	105.2	
121	Sb	2	115	199.20	ppb	0.56	200.00	80 -	120	99.6	
137	Ba	2	115	198.90	ppb	1.21	200.00	80 -	120	99.5	
205	Tl	2	209	211.40	ppb	1.02	200.00	80 -	120	105.7	
208	Pb	2	209	205.40	ppb	0.49	200.00	80 -	120	102.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	4667795.50	1.06	4008511.30	116.4	70 -	120	
45	Sc	1	123478.87	1.32	100020.03	123.5	70 -	120	ISFail
45	Sc	2	5575261.50	0.39	4946391.00	112.7	70 -	120	
72	Ge	1	73560.70	1.16	61823.22	119.0	70 -	120	
115	In	2	6222683.00	0.88	5661857.00	109.9	70 -	120	
209	Bi	2	5026168.50	0.50	4553307.50	110.4	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\091_LCS.D\091_LCS.D#

Date Acquired:	Jan 29 2014 07:03 pm	Sample Name:	**LCSD-61561**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSD6020A_S
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	271000.00	ppb	0.36	200.00	80 -	120	######	Fail
9	Be	2	45	226.20	ppb	1.28	200.00	80 -	120	113.1	
11	B	2	45	220.20	ppb	1.97	200.00	80 -	120	110.1	
23	Na	1	45	1105.00	ppb	2.35	1000.00	80 -	120	110.5	
24	Mg	1	45	1082.00	ppb	1.25	1000.00	80 -	120	108.2	
27	Al	1	45	1105.00	ppb	3.81	1000.00	80 -	120	110.5	
39	K	1	45	1155.00	ppb	1.02	1000.00	80 -	120	115.5	
44	Ca	2	45	1188.00	ppb	1.75	1000.00	80 -	120	118.8	
47	Ti	1	45	213.00	ppb	1.21	200.00	80 -	120	106.5	
51	V	1	45	203.30	ppb	1.52	200.00	80 -	120	101.7	
52	Cr	1	45	203.00	ppb	2.37	200.00	80 -	120	101.5	
55	Mn	1	45	222.80	ppb	3.09	200.00	80 -	120	111.4	
56	Fe	1	72	1087.00	ppb	2.35	1000.00	80 -	120	108.7	
59	Co	1	72	212.40	ppb	2.03	200.00	80 -	120	106.2	
60	Ni	1	72	217.50	ppb	1.89	200.00	80 -	120	108.8	
63	Cu	1	72	209.90	ppb	2.13	200.00	80 -	120	105.0	
66	Zn	1	72	210.00	ppb	2.02	200.00	80 -	120	105.0	
75	As	1	72	209.10	ppb	2.13	200.00	80 -	120	104.6	
78	Se	1	72	213.30	ppb	2.31	200.00	80 -	120	106.7	
88	Sr	2	115	221.00	ppb	1.52	200.00	80 -	120	110.5	
95	Mo	2	115	214.10	ppb	1.25	200.00	80 -	120	107.1	
107	Ag	2	115	214.40	ppb	1.25	200.00	80 -	120	107.2	
111	Cd	2	115	206.00	ppb	1.38	200.00	80 -	120	103.0	
118	Sn	2	115	217.50	ppb	1.95	200.00	80 -	120	108.8	
121	Sb	2	115	205.80	ppb	1.16	200.00	80 -	120	102.9	
137	Ba	2	115	205.30	ppb	0.61	200.00	80 -	120	102.7	
205	Tl	2	209	219.10	ppb	1.79	200.00	80 -	120	109.6	
208	Pb	2	209	212.20	ppb	1.32	200.00	80 -	120	106.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	4667370.50	2.52	4008511.30	116.4	70 -	120	
45	Sc	1	122279.98	1.10	100020.03	122.3	70 -	120	ISFail
45	Sc	2	5545588.50	0.87	4946391.00	112.1	70 -	120	
72	Ge	1	73091.85	1.05	61823.22	118.2	70 -	120	
115	In	2	6219874.00	1.40	5661857.00	109.9	70 -	120	
209	Bi	2	5032162.00	0.40	4553307.50	110.5	70 -	120	

DT QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\094DT1.D\094DT1.D#

SD

Date Acquired:	Jan 29 2014 07:21 pm	Sample Name:	1401211-01C MS
Acq. Method:	DHL_3Fe.M	Misc Info:	MS 6020A_S
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

sw1/30/14

QC Elements

Element			Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7 Li	2	45	10490.00	ppb	0.13	#########	90 - 110	1.2	
9 Be	2	45	0.84	ppb	3.00	3.78	90 - 110	111.7	
11 B	2	45	13.45	ppb	1.37	59.95	90 - 110	112.2	
23 Na	1	45	129.30	ppb	3.56	599.90	90 - 110	107.8	GOOD
24 Mg	1	45	4415.00	ppb	1.18	21520.00	90 - 110	102.6	GOOD
27 Al	1	45	24050.00	ppb	1.68	117200.00	90 - 110	102.6	GOOD
39 K	1	45	5188.00	ppb	1.18	25990.00	90 - 110	99.8	GOOD
44 Ca	2	45	34960.00	ppb	0.52	163500.00	90 - 110	106.9	GOOD
47 Ti	1	45	118.30	ppb	5.07	566.70	90 - 110	104.4	GOOD
51 V	1	45	20.49	ppb	2.51	98.80	90 - 110	103.7	GOOD
52 Cr	1	45	14.11	ppb	2.69	66.78	90 - 110	105.6	GOOD
55 Mn	1	45	172.40	ppb	1.81	818.70	90 - 110	105.3	GOOD
56 Fe	1	72	13570.00	ppb	1.95	66670.00	90 - 110	101.8	GOOD
59 Co	1	72	4.22	ppb	1.07	20.13	90 - 110	104.8	GOOD
60 Ni	1	72	8.85	ppb	1.61	41.56	90 - 110	106.4	GOOD
63 Cu	1	72	8.14	ppb	1.36	37.88	90 - 110	107.4	GOOD
66 Zn	1	72	42.79	ppb	1.30	190.40	90 - 110	112.4	
75 As	1	72	2.52	ppb	3.36	11.82	90 - 110	106.4	GOOD
78 Se	1	72	2.89	ppb	4.11	14.19	90 - 110	101.7	GOOD
88 Sr	2	115	32.63	ppb	0.86	162.90	90 - 110	100.2	GOOD
95 Mo	2	115	-0.12	ppb	6.23	0.21	90 - 110	-295.1	
107 Ag	2	115	0.06	ppb	10.37	0.25	90 - 110	122.6	
111 Cd	2	115	0.39	ppb	18.41	2.07	90 - 110	95.2	GOOD
118 Sn	2	115	1.37	ppb	5.98	7.29	90 - 110	94.1	GOOD
121 Sb	2	115	0.13	ppb	9.07	0.55	90 - 110	122.8	
137 Ba	2	115	118.00	ppb	0.43	564.50	90 - 110	104.5	GOOD
205 Tl	2	209	0.27	ppb	2.13	1.26	90 - 110	106.3	GOOD
208 Pb	2	209	7.44	ppb	0.36	36.86	90 - 110	100.9	GOOD

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6 Li	2		4484152.50	1.12	4008511.30	111.9	70 -	120	
45 Sc	1		121531.44	1.65	100020.03	121.5	70 -	120	ISFail
45 Sc	2		5599848.00	0.45	4946391.00	113.2	70 -	120	
72 Ge	1		72905.58	1.27	61823.22	117.9	70 -	120	
115 In	2		6184239.50	0.99	5661857.00	109.2	70 -	120	
209 Bi	2		4957861.00	0.38	4553307.50	108.9	70 -	120	

PDS QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\098_PDS.D\098_PDS.D#

Date Acquired:	Jan 29 2014 07:44 pm	Sample Name:	**1401211-01C PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS 6020A_S
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	52370.00	ppb	1.13	#########	200	75-125	######	Fail
9	Be	2	45	212.20	ppb	1.31	3.78	200	75-125	104.2	
11	B	2	45	254.80	ppb	0.55	59.95	200	75-125	97.4	
23	Na	1	45	6025.00	ppb	1.52	599.90	5000	75-125	108.5	
24	Mg	1	45	29260.00	ppb	0.51	21520.00	5000	75-125	154.8	Fail
27	Al	1	45	136400.00	ppb	1.71	117200.00	5000	75-125	384.0	Fail
39	K	1	45	34520.00	ppb	1.23	25990.00	5000	75-125	170.6	Fail
44	Ca	2	45	191500.00	ppb	1.28	163500.00	5000	75-125	560.0	Fail
47	Ti	1	45	855.30	ppb	1.57	566.70	200	75-125	144.3	Fail
51	V	1	45	317.40	ppb	1.16	98.80	200	75-125	109.3	
52	Cr	1	45	278.50	ppb	1.36	66.78	200	75-125	105.9	
55	Mn	1	45	1145.00	ppb	1.26	818.70	200	75-125	163.1	Fail
56	Fe	1	72	82030.00	ppb	0.99	66670.00	5000	75-125	307.2	Fail
59	Co	1	72	241.40	ppb	0.92	20.13	200	75-125	110.6	
60	Ni	1	72	265.90	ppb	1.00	41.56	200	75-125	112.2	
63	Cu	1	72	247.00	ppb	0.89	37.88	200	75-125	104.6	
66	Zn	1	72	411.00	ppb	1.27	190.40	200	75-125	110.3	
75	As	1	72	226.00	ppb	0.93	11.82	200	75-125	107.1	
78	Se	1	72	227.30	ppb	1.64	14.19	200	75-125	106.6	
88	Sr	2	115	411.00	ppb	0.69	162.90	200	75-125	124.1	
95	Mo	2	115	215.70	ppb	1.15	0.21	200	75-125	107.7	
107	Ag	2	115	103.30	ppb	10.12	0.25	200	75-125	51.5	Fail
111	Cd	2	115	202.70	ppb	1.51	2.07	200	75-125	100.3	
118	Sn	2	115	224.50	ppb	1.55	7.29	200	75-125	108.6	
121	Sb	2	115	199.60	ppb	0.99	0.55	200	75-125	99.5	
137	Ba	2	115	913.50	ppb	1.34	564.50	200	75-125	174.5	Fail
205	Tl	2	209	230.30	ppb	0.64	1.26	200	75-125	114.5	
208	Pb	2	209	262.40	ppb	0.99	36.86	200	75-125	112.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3993793.80	0.35	4008511.30	99.6	70 - 120	
45	Sc	1	115558.52	1.40	100020.03	115.5	70 - 120	
45	Sc	2	5363424.50	0.58	4946391.00	108.4	70 - 120	
72	Ge	1	66229.49	1.33	61823.22	107.1	70 - 120	
115	In	2	5688504.00	1.07	5661857.00	100.5	70 - 120	
209	Bi	2	4387515.00	0.52	4553307.50	96.4	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\099_MS.D\099_MS.D#

Date Acquired:	Jan 29 2014 07:50 pm	Sample Name:	**1401211-01C MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS 6020A_S
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	292800.00	ppb	1.37	########	200	80-120	######	Fail
9	Be	2	45	213.30	ppb	0.43	3.78	200	80-120	104.8	
11	B	2	45	230.20	ppb	0.72	59.95	200	80-120	85.1	
23	Na	1	45	1627.00	ppb	1.25	599.90	1000	80-120	102.7	
24	Mg	1	45	22070.00	ppb	1.68	21520.00	1000	80-120	55.0	Fail
27	Al	1	45	119100.00	ppb	1.21	########	1000	80-120	190.0	Fail
39	K	1	45	26720.00	ppb	0.86	25990.00	1000	80-120	73.0	Fail
44	Ca	2	45	54030.00	ppb	0.45	########	1000	80-120	######	Fail
47	Ti	1	45	367.70	ppb	0.95	566.70	200	80-120	-99.5	Fail
51	V	1	45	279.30	ppb	1.25	98.80	200	80-120	90.2	
52	Cr	1	45	259.90	ppb	1.87	66.78	200	80-120	96.6	
55	Mn	1	45	1202.00	ppb	1.50	818.70	200	80-120	191.6	Fail
56	Fe	1	72	69670.00	ppb	1.83	66670.00	1000	80-120	300.0	Fail
59	Co	1	72	228.30	ppb	1.13	20.13	200	80-120	104.1	
60	Ni	1	72	252.40	ppb	1.24	41.56	200	80-120	105.4	
63	Cu	1	72	239.80	ppb	0.69	37.88	200	80-120	101.0	
66	Zn	1	72	393.10	ppb	1.08	190.40	200	80-120	101.4	
75	As	1	72	206.70	ppb	0.74	11.82	200	80-120	97.4	
78	Se	1	72	211.30	ppb	1.12	14.19	200	80-120	98.6	
88	Sr	2	115	365.80	ppb	0.87	162.90	200	80-120	101.5	
95	Mo	2	115	175.00	ppb	0.92	0.21	200	80-120	87.4	
107	Ag	2	115	199.60	ppb	1.09	0.25	200	80-120	99.7	
111	Cd	2	115	197.10	ppb	0.88	2.07	200	80-120	97.5	
118	Sn	2	115	209.90	ppb	0.59	7.29	200	80-120	101.3	
121	Sb	2	115	79.44	ppb	1.39	0.55	200	80-120	39.4	Fail
137	Ba	2	115	1503.00	ppb	0.90	564.50	200	80-120	469.3	Fail
205	Tl	2	209	220.30	ppb	0.28	1.26	200	80-120	109.5	
208	Pb	2	209	249.00	ppb	0.94	36.86	200	80-120	106.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4193522.80	0.93	4008511.30	104.6	70 - 120	
45	Sc	1	117213.78	0.92	100020.03	117.2	70 - 120	
45	Sc	2	5445040.50	1.04	4946391.00	110.1	70 - 120	
72	Ge	1	68195.45	1.07	61823.22	110.3	70 - 120	
115	In	2	5747430.50	0.26	5661857.00	101.5	70 - 120	
209	Bi	2	4451933.50	1.43	4553307.50	97.8	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\100_MS.D\100_MS.D#

Date Acquired:	Jan 29 2014 07:56 pm	Sample Name:	**1401211-01C MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD 6020A_S
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	284600.00	ppb	1.10	########	200	80-120	######	Fail
9	Be	2	45	213.40	ppb	1.26	3.78	200	80-120	104.8	
11	B	2	45	232.20	ppb	0.99	59.95	200	80-120	86.1	
23	Na	1	45	1647.00	ppb	1.07	599.90	1000	80-120	104.7	
24	Mg	1	45	21960.00	ppb	1.76	21520.00	1000	80-120	44.0	Fail
27	Al	1	45	115800.00	ppb	3.00	########	1000	80-120	-140.0	Fail
39	K	1	45	26180.00	ppb	1.61	25990.00	1000	80-120	19.0	Fail
44	Ca	2	45	93580.00	ppb	1.84	########	1000	80-120	######	Fail
47	Ti	1	45	360.30	ppb	3.05	566.70	200	80-120	-103.2	Fail
51	V	1	45	282.70	ppb	2.11	98.80	200	80-120	91.9	
52	Cr	1	45	263.30	ppb	1.91	66.78	200	80-120	98.3	
55	Mn	1	45	1043.00	ppb	2.63	818.70	200	80-120	112.1	
56	Fe	1	72	68560.00	ppb	2.43	66670.00	1000	80-120	189.0	Fail
59	Co	1	72	231.00	ppb	1.68	20.13	200	80-120	105.4	
60	Ni	1	72	255.40	ppb	1.77	41.56	200	80-120	106.9	
63	Cu	1	72	242.80	ppb	1.48	37.88	200	80-120	102.5	
66	Zn	1	72	393.60	ppb	1.67	190.40	200	80-120	101.6	
75	As	1	72	213.10	ppb	1.82	11.82	200	80-120	100.6	
78	Se	1	72	214.60	ppb	2.12	14.19	200	80-120	100.2	
88	Sr	2	115	380.50	ppb	1.21	162.90	200	80-120	108.8	
95	Mo	2	115	182.10	ppb	1.19	0.21	200	80-120	90.9	
107	Ag	2	115	204.10	ppb	1.45	0.25	200	80-120	101.9	
111	Cd	2	115	203.20	ppb	1.52	2.07	200	80-120	100.6	
118	Sn	2	115	214.70	ppb	1.91	7.29	200	80-120	103.7	
121	Sb	2	115	81.21	ppb	1.46	0.55	200	80-120	40.3	Fail
137	Ba	2	115	1559.00	ppb	1.50	564.50	200	80-120	497.3	Fail
205	Tl	2	209	225.60	ppb	1.33	1.26	200	80-120	112.2	
208	Pb	2	209	251.60	ppb	1.62	36.86	200	80-120	107.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4095546.30	1.23	4008511.30	102.2	70 - 120	
45	Sc	1	114369.03	1.46	100020.03	114.3	70 - 120	
45	Sc	2	5469308.50	1.52	4946391.00	110.6	70 - 120	
72	Ge	1	66394.13	1.34	61823.22	107.4	70 - 120	
115	In	2	5758598.00	1.36	5661857.00	101.7	70 - 120	
209	Bi	2	4501144.50	1.99	4553307.50	98.9	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\101CCV1.D\101CCV1.D#

Date Acquired:	Jan 29 2014 08:02 pm	Sample Name:	**CCV3-140129**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	-2140.00	ppb	0.43	200.00	90 -	110	######	Fail
9	Be	2	45	214.70	ppb	0.42	200.00	90 -	110	107.4	
11	B	2	45	204.10	ppb	0.10	200.00	90 -	110	102.1	
23	Na	1	45	5285.00	ppb	0.37	5000.00	90 -	110	105.7	
24	Mg	1	45	5023.00	ppb	1.75	5000.00	90 -	110	100.5	
27	Al	1	45	5343.00	ppb	2.34	5000.00	90 -	110	106.9	
39	K	1	45	5392.00	ppb	1.66	5000.00	90 -	110	107.8	
44	Ca	2	45	5542.00	ppb	0.66	5000.00	90 -	110	110.8	Fail
47	Ti	1	45	210.30	ppb	3.52	200.00	90 -	110	105.2	
51	V	1	45	198.80	ppb	1.79	200.00	90 -	110	99.4	
52	Cr	1	45	201.20	ppb	2.05	200.00	90 -	110	100.6	
55	Mn	1	45	212.80	ppb	1.71	200.00	90 -	110	106.4	
56	Fe	1	72	5378.00	ppb	1.67	5000.00	90 -	110	107.6	
59	Co	1	72	208.50	ppb	1.48	200.00	90 -	110	104.3	
60	Ni	1	72	213.10	ppb	1.48	200.00	90 -	110	106.6	
63	Cu	1	72	208.70	ppb	1.17	200.00	90 -	110	104.4	
66	Zn	1	72	212.20	ppb	1.83	200.00	90 -	110	106.1	
75	As	1	72	213.60	ppb	1.70	200.00	90 -	110	106.8	
78	Se	1	72	218.10	ppb	2.90	200.00	90 -	110	109.1	
88	Sr	2	115	217.00	ppb	1.08	200.00	90 -	110	108.5	
95	Mo	2	115	210.20	ppb	0.95	200.00	90 -	110	105.1	
107	Ag	2	115	203.00	ppb	0.33	200.00	90 -	110	101.5	
111	Cd	2	115	204.70	ppb	0.98	200.00	90 -	110	102.4	
118	Sn	2	115	204.00	ppb	0.81	200.00	90 -	110	102.0	
121	Sb	2	115	198.20	ppb	0.47	200.00	90 -	110	99.1	
137	Ba	2	115	200.60	ppb	0.40	200.00	90 -	110	100.3	
205	Tl	2	209	212.80	ppb	1.17	200.00	90 -	110	106.4	
208	Pb	2	209	207.60	ppb	0.55	200.00	90 -	110	103.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4206022.00	1.57	4008511.30	104.9	70 -	120		
45	Sc	1	117764.41	0.72	100020.03	117.7	70 -	120		
45	Sc	2	5521889.00	0.38	4946391.00	111.6	70 -	120		
72	Ge	1	70825.55	0.53	61823.22	114.6	70 -	120		
115	In	2	6100559.00	0.97	5661857.00	107.7	70 -	120		
209	Bi	2	4895243.00	0.74	4553307.50	107.5	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\107LCVL.D\107LCVL.D#

Date Acquired:	Jan 29 2014 08:38 pm	Sample Name:	**LCVL3-140129**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	-142.60	ppb	0.52	5.00	70 -	130	######	Fail
9	Be	2	45	1.17	ppb	4.97	1.00	70 -	130	117.4	
11	B	2	45	20.60	ppb	0.97	20.00	70 -	130	103.0	
23	Na	1	45	104.50	ppb	0.92	100.00	70 -	130	104.5	
24	Mg	1	45	102.60	ppb	0.53	100.00	70 -	130	102.6	
27	Al	1	45	109.50	ppb	2.19	100.00	70 -	130	109.5	
39	K	1	45	110.70	ppb	1.36	100.00	70 -	130	110.7	
44	Ca	2	45	111.60	ppb	1.42	100.00	70 -	130	111.6	
47	Ti	1	45	4.85	ppb	34.57	5.00	70 -	130	97.0	
51	V	1	45	1.15	ppb	2.73	1.00	70 -	130	114.5	
52	Cr	1	45	5.07	ppb	2.92	5.00	70 -	130	101.3	
55	Mn	1	45	5.61	ppb	3.74	5.00	70 -	130	112.2	
56	Fe	1	72	111.00	ppb	1.58	100.00	70 -	130	111.0	
59	Co	1	72	5.44	ppb	3.28	5.00	70 -	130	108.8	
60	Ni	1	72	5.58	ppb	5.01	5.00	70 -	130	111.7	
63	Cu	1	72	5.31	ppb	1.26	5.00	70 -	130	106.3	
66	Zn	1	72	5.43	ppb	3.78	5.00	70 -	130	108.5	
75	As	1	72	5.64	ppb	2.87	5.00	70 -	130	112.7	
78	Se	1	72	5.62	ppb	6.96	5.00	70 -	130	112.3	
88	Sr	2	115	5.30	ppb	1.15	5.00	70 -	130	106.0	
95	Mo	2	115	4.79	ppb	1.93	5.00	70 -	130	95.8	
107	Ag	2	115	2.10	ppb	1.87	2.00	70 -	130	104.8	
111	Cd	2	115	1.15	ppb	1.70	1.00	70 -	130	114.8	
118	Sn	2	115	5.09	ppb	2.00	5.00	70 -	130	101.8	
121	Sb	2	115	2.18	ppb	2.96	2.00	70 -	130	109.0	
137	Ba	2	115	5.05	ppb	3.95	5.00	70 -	130	101.1	
205	Tl	2	209	1.08	ppb	3.07	1.00	70 -	130	107.8	
208	Pb	2	209	1.08	ppb	0.98	1.00	70 -	130	107.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4488751.50	1.05	4008511.30	112.0	70 -	120		
45	Sc	1	120102.96	1.88	100020.03	120.1	70 -	120		ISFail
45	Sc	2	5529144.50	1.88	4946391.00	111.8	70 -	120		
72	Ge	1	72134.55	1.77	61823.22	116.7	70 -	120		
115	In	2	6153156.50	0.87	5661857.00	108.7	70 -	120		
209	Bi	2	4863872.50	0.80	4553307.50	106.8	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\109_CCB.D\109_CCB.D#

Date Acquired:	Jan 29 2014 08:50 pm	Sample Name:	**CCB3-140129**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	-219.200	ppb	0.37	2.00	2.00	
9	Be	2	45	0.017	ppb	16.23	0.10	0.30	
11	B	2	45	-0.687	ppb	2.24	10.00	10.00	
23	Na	1	45	-0.033	ppb	5.62	50.00	#####	
24	Mg	1	45	-1.579	ppb	9.94	50.00	#####	
27	Al	1	45	-0.420	ppb	11.41	50.00	10.00	
39	K	1	45	7.271	ppb	2.26	50.00	#####	
44	Ca	2	45	2.872	ppb	2.02	50.00	#####	
47	Ti	1	45	-0.004	ppb	173.20	4.00	3.00	
51	V	1	45	0.067	ppb	5.78	4.00	3.00	
52	Cr	1	45	0.036	ppb	2.57	2.00	2.00	
55	Mn	1	45	0.041	ppb	16.46	2.00	3.00	
56	Fe	1	72	0.171	ppb	13.11	50.00	50.00	
59	Co	1	72	0.009	ppb	32.29	2.00	3.00	
60	Ni	1	72	0.016	ppb	20.65	2.00	3.00	
63	Cu	1	72	-0.126	ppb	11.64	2.00	2.00	
66	Zn	1	72	-0.179	ppb	16.00	4.00	2.00	
75	As	1	72	0.043	ppb	9.74	2.00	2.00	
78	Se	1	72	-0.186	ppb	20.68	0.60	2.00	
88	Sr	2	115	0.022	ppb	5.26	4.00	3.00	
95	Mo	2	115	-0.212	ppb	4.78	2.00	2.00	
107	Ag	2	115	0.012	ppb	9.52	0.40	1.00	
111	Cd	2	115	0.038	ppb	22.86	0.40	0.30	
118	Sn	2	115	-0.094	ppb	2.43	4.00	3.00	
121	Sb	2	115	0.092	ppb	5.53	2.00	0.80	
137	Ba	2	115	0.017	ppb	15.79	2.00	3.00	
205	Tl	2	209	0.018	ppb	6.24	2.00	0.50	
208	Pb	2	209	0.010	ppb	10.69	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4441890.50	0.94	4008511.30	110.8	70 - 120	
45	Sc	1	117457.16	2.17	100020.03	117.4	70 - 120	
45	Sc	2	5478784.50	0.71	4946391.00	110.8	70 - 120	
72	Ge	1	70800.67	1.72	61823.22	114.5	70 - 120	
115	In	2	6121807.00	0.90	5661857.00	108.1	70 - 120	
209	Bi	2	4829975.00	1.45	4553307.50	106.1	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\110__PB.D\110__PB.D#

Date Acquired:	Jan 29 2014 08:56 pm	Sample Name:	**MB-61551**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLK6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	-69.310	ppb	0.13	2.0	5.00	
9	Be	2	45	0.020	ppb	26.52	0.3	0.80	
11	B	2	45	-0.624	ppb	3.74	10.0	30.00	
23	Na	1	45	9.185	ppb	2.58	100.0	#####	
24	Mg	1	45	0.474	ppb	14.09	100.0	#####	
27	Al	1	45	3.534	ppb	4.49	10.0	30.00	
39	K	1	45	8.615	ppb	2.43	100.0	#####	
44	Ca	2	45	19.200	ppb	4.85	100.0	#####	
47	Ti	1	45	0.076	ppb	114.58	3.0	10.00	
51	V	1	45	0.078	ppb	4.97	3.0	10.00	
52	Cr	1	45	0.049	ppb	8.94	2.0	5.00	
55	Mn	1	45	0.090	ppb	21.61	3.0	10.00	
56	Fe	1	72	0.874	ppb	8.19	50.0	#####	
59	Co	1	72	0.013	ppb	21.09	3.0	10.00	
60	Ni	1	72	0.018	ppb	32.87	3.0	10.00	
63	Cu	1	72	-0.104	ppb	11.63	2.0	10.00	
66	Zn	1	72	1.666	ppb	6.40	2.0	5.00	
75	As	1	72	0.045	ppb	12.29	2.0	5.00	
78	Se	1	72	-0.055	ppb	14.03	2.0	5.00	
88	Sr	2	115	0.027	ppb	4.71	3.0	10.00	
95	Mo	2	115	-0.249	ppb	22.32	2.0	5.00	
107	Ag	2	115	0.014	ppb	15.75	1.0	2.00	
111	Cd	2	115	0.016	ppb	20.82	0.3	1.00	
118	Sn	2	115	-0.119	ppb	2.10	3.0	10.00	
121	Sb	2	115	0.085	ppb	5.81	0.8	2.50	
137	Ba	2	115	0.026	ppb	24.30	3.0	10.00	
205	Tl	2	209	0.010	ppb	5.50	0.5	1.50	
208	Pb	2	209	0.013	ppb	13.79	0.3	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4476888.50	1.45	4008511.30	111.7	70 - 120	
45	Sc	1	118453.70	1.70	100020.03	118.4	70 - 120	
45	Sc	2	5551479.00	1.22	4946391.00	112.2	70 - 120	
72	Ge	1	71787.56	1.32	61823.22	116.1	70 - 120	
115	In	2	6153603.00	0.99	5661857.00	108.7	70 - 120	
209	Bi	2	4892240.50	1.07	4553307.50	107.4	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\111_LCS.D\111_LCS.D#

Date Acquired:	Jan 29 2014 09:02 pm	Sample Name:	**LCS-61551**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	251800.00	ppb	2.05	200.00	80 -	120	######	Fail
9	Be	2	45	221.80	ppb	0.82	200.00	80 -	120	110.9	
11	B	2	45	207.10	ppb	1.25	200.00	80 -	120	103.6	
23	Na	1	45	5464.00	ppb	1.92	5000.00	80 -	120	109.3	
24	Mg	1	45	5162.00	ppb	1.62	5000.00	80 -	120	103.2	
27	Al	1	45	5321.00	ppb	1.55	5000.00	80 -	120	106.4	
39	K	1	45	5478.00	ppb	1.27	5000.00	80 -	120	109.6	
44	Ca	2	45	5594.00	ppb	2.17	5000.00	80 -	120	111.9	
47	Ti	1	45	211.00	ppb	1.83	200.00	80 -	120	105.5	
51	V	1	45	200.60	ppb	1.34	200.00	80 -	120	100.3	
52	Cr	1	45	197.70	ppb	1.61	200.00	80 -	120	98.9	
55	Mn	1	45	213.30	ppb	1.26	200.00	80 -	120	106.7	
56	Fe	1	72	5373.00	ppb	1.57	5000.00	80 -	120	107.5	
59	Co	1	72	207.70	ppb	1.14	200.00	80 -	120	103.9	
60	Ni	1	72	214.20	ppb	1.74	200.00	80 -	120	107.1	
63	Cu	1	72	208.30	ppb	0.59	200.00	80 -	120	104.2	
66	Zn	1	72	218.60	ppb	0.43	200.00	80 -	120	109.3	
75	As	1	72	215.00	ppb	0.89	200.00	80 -	120	107.5	
78	Se	1	72	223.70	ppb	2.35	200.00	80 -	120	111.9	
88	Sr	2	115	216.10	ppb	1.43	200.00	80 -	120	108.1	
95	Mo	2	115	207.90	ppb	1.03	200.00	80 -	120	104.0	
107	Ag	2	115	207.90	ppb	1.32	200.00	80 -	120	104.0	
111	Cd	2	115	205.80	ppb	1.89	200.00	80 -	120	102.9	
118	Sn	2	115	203.60	ppb	1.30	200.00	80 -	120	101.8	
121	Sb	2	115	204.00	ppb	0.85	200.00	80 -	120	102.0	
137	Ba	2	115	200.20	ppb	0.62	200.00	80 -	120	100.1	
205	Tl	2	209	213.80	ppb	1.76	200.00	80 -	120	106.9	
208	Pb	2	209	205.10	ppb	0.77	200.00	80 -	120	102.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	4361564.50	0.68	4008511.30	108.8	70 -	120	
45	Sc	1	117769.30	0.65	100020.03	117.7	70 -	120	
45	Sc	2	5420528.50	1.29	4946391.00	109.6	70 -	120	
72	Ge	1	70685.22	0.87	61823.22	114.3	70 -	120	
115	In	2	5996745.50	1.44	5661857.00	105.9	70 -	120	
209	Bi	2	4727615.50	1.07	4553307.50	103.8	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\112_LCS.D\112_LCS.D#

Date Acquired:	Jan 29 2014 09:08 pm	Sample Name:	**LCSD-61551**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSD6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	256000.00	ppb	2.20	200.00	80 -	120	######	Fail
9	Be	2	45	222.90	ppb	1.33	200.00	80 -	120	111.5	
11	B	2	45	208.90	ppb	0.77	200.00	80 -	120	104.5	
23	Na	1	45	5527.00	ppb	1.59	5000.00	80 -	120	110.5	
24	Mg	1	45	5183.00	ppb	0.48	5000.00	80 -	120	103.7	
27	Al	1	45	5348.00	ppb	0.94	5000.00	80 -	120	107.0	
39	K	1	45	5531.00	ppb	0.38	5000.00	80 -	120	110.6	
44	Ca	2	45	5608.00	ppb	0.26	5000.00	80 -	120	112.2	
47	Ti	1	45	210.00	ppb	0.62	200.00	80 -	120	105.0	
51	V	1	45	200.80	ppb	0.23	200.00	80 -	120	100.4	
52	Cr	1	45	198.10	ppb	0.51	200.00	80 -	120	99.1	
55	Mn	1	45	212.80	ppb	0.32	200.00	80 -	120	106.4	
56	Fe	1	72	5416.00	ppb	0.44	5000.00	80 -	120	108.3	
59	Co	1	72	207.40	ppb	0.31	200.00	80 -	120	103.7	
60	Ni	1	72	213.90	ppb	0.78	200.00	80 -	120	107.0	
63	Cu	1	72	207.30	ppb	0.40	200.00	80 -	120	103.7	
66	Zn	1	72	216.80	ppb	0.49	200.00	80 -	120	108.4	
75	As	1	72	215.10	ppb	0.39	200.00	80 -	120	107.6	
78	Se	1	72	224.70	ppb	0.33	200.00	80 -	120	112.4	
88	Sr	2	115	216.10	ppb	1.60	200.00	80 -	120	108.1	
95	Mo	2	115	208.10	ppb	1.12	200.00	80 -	120	104.1	
107	Ag	2	115	209.10	ppb	1.04	200.00	80 -	120	104.6	
111	Cd	2	115	205.50	ppb	0.68	200.00	80 -	120	102.8	
118	Sn	2	115	203.50	ppb	0.56	200.00	80 -	120	101.8	
121	Sb	2	115	205.00	ppb	0.77	200.00	80 -	120	102.5	
137	Ba	2	115	201.00	ppb	0.19	200.00	80 -	120	100.5	
205	Tl	2	209	212.40	ppb	0.20	200.00	80 -	120	106.2	
208	Pb	2	209	199.00	ppb	0.92	200.00	80 -	120	99.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	4194149.00	0.80	4008511.30	104.6	70 -	120	
45	Sc	1	113568.71	0.16	100020.03	113.5	70 -	120	
45	Sc	2	5213597.50	0.48	4946391.00	105.4	70 -	120	
72	Ge	1	68267.01	0.15	61823.22	110.4	70 -	120	
115	In	2	5759738.50	0.44	5661857.00	101.7	70 -	120	
209	Bi	2	4593631.50	1.53	4553307.50	100.9	70 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\114AREF.D\114AREF.D#

Date Acquired:	Jan 29 2014 09:20 pm	Sample Name:	**1401180-04A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	4884.000	ppb	#REF!	0.69	2000.00	OUTCAL
9	Be	2	45	0.091	ppb	#REF!	28.65	2000.00	ND
11	B	2	45	35.660	ppb	#REF!	0.76	2000.00	>RL
23	Na	1	45	6800.000	ppb	#REF!	1.83	25000.00	>RL
24	Mg	1	45	4974.000	ppb	#REF!	1.95	25000.00	>RL
27	Al	1	45	50.850	ppb	#REF!	0.90	10000.00	>RL
39	K	1	45	1841.000	ppb	#REF!	2.50	25000.00	>RL
44	Ca	2	45	105400.000	ppb	#REF!	1.26	25000.00	OUTCAL
47	Ti	1	45	1.567	ppb	#REF!	111.57	2000.00	ND
51	V	1	45	1.800	ppb	#REF!	7.05	2000.00	ND
52	Cr	1	45	0.159	ppb	#REF!	5.35	2000.00	ND
55	Mn	1	45	20.280	ppb	#REF!	4.41	2000.00	>RL
56	Fe	1	72	74.400	ppb	#REF!	2.52	10000.00	>RL
59	Co	1	72	0.446	ppb	#REF!	4.90	2000.00	ND
60	Ni	1	72	0.726	ppb	#REF!	8.43	2000.00	ND
63	Cu	1	72	1.415	ppb	#REF!	3.43	2000.00	ND
66	Zn	1	72	2.570	ppb	#REF!	3.61	2000.00	ND
75	As	1	72	1.837	ppb	#REF!	5.26	2000.00	ND
78	Se	1	72	6.478	ppb	#REF!	12.44	2000.00	>RL
88	Sr	2	115	233.700	ppb	#REF!	0.66	2000.00	>RL
95	Mo	2	115	13.170	ppb	#REF!	1.36	2000.00	>RL
107	Ag	2	115	0.067	ppb	#REF!	38.31	500.00	ND
111	Cd	2	115	0.099	ppb	#REF!	8.34	2000.00	ND
118	Sn	2	115	-0.029	ppb	#REF!	14.58	2000.00	ND
121	Sb	2	115	336.200	ppb	#REF!	0.99	500.00	>RL
137	Ba	2	115	69.470	ppb	#REF!	0.85	2000.00	>RL
205	Tl	2	209	0.149	ppb	#REF!	17.22	2000.00	ND
208	Pb	2	209	0.335	ppb	#REF!	7.29	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4346047.50	0.29	4008511.30	108.4	70 - 120	
45	Sc	1	116243.45	1.58	100020.03	116.2	70 - 120	
45	Sc	2	5356101.50	0.46	4946391.00	108.3	70 - 120	
72	Ge	1	69910.20	1.31	61823.22	113.1	70 - 120	
115	In	2	5914258.50	0.84	5661857.00	104.5	70 - 120	
209	Bi	2	4607071.00	1.16	4553307.50	101.2	70 - 120	

DT QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\115DT1.D\115DT1.D#

Date Acquired:	Jan 29 2014 09:26 pm	Sample Name:	**1401180-04A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD 6020A_W
Operator:	SW	Bench Diln:	5.00
Last Cal. Update:	Jan 29 2014 01:07 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	2082.00	ppb	1.21	#########	90 - 110	0.2	
9	Be	2	45	0.04	ppb	16.38	0.09	90 - 110	198.7	
11	B	2	45	7.01	ppb	2.51	35.66	90 - 110	98.3	GOOD
23	Na	1	45	1364.00	ppb	1.56	6800.00	90 - 110	100.3	GOOD
24	Mg	1	45	1030.00	ppb	1.88	4974.00	90 - 110	103.5	GOOD
27	Al	1	45	11.10	ppb	5.02	50.85	90 - 110	109.1	GOOD
39	K	1	45	380.70	ppb	2.05	1841.00	90 - 110	103.4	GOOD
44	Ca	2	45	21280.00	ppb	1.05	105400.00	90 - 110	100.9	GOOD
47	Ti	1	45	0.32	ppb	13.32	1.57	90 - 110	103.5	GOOD
51	V	1	45	0.48	ppb	9.72	1.80	90 - 110	134.4	
52	Cr	1	45	0.10	ppb	3.84	0.16	90 - 110	314.2	
55	Mn	1	45	4.19	ppb	2.74	20.28	90 - 110	103.4	GOOD
56	Fe	1	72	15.81	ppb	0.26	74.40	90 - 110	106.2	GOOD
59	Co	1	72	0.11	ppb	6.91	0.45	90 - 110	122.1	
60	Ni	1	72	0.18	ppb	5.97	0.73	90 - 110	121.4	
63	Cu	1	72	0.20	ppb	9.42	1.42	90 - 110	71.3	
66	Zn	1	72	0.42	ppb	5.06	2.57	90 - 110	81.0	
75	As	1	72	0.38	ppb	8.84	1.84	90 - 110	102.6	GOOD
78	Se	1	72	1.25	ppb	11.10	6.48	90 - 110	96.6	GOOD
88	Sr	2	115	44.53	ppb	1.37	233.70	90 - 110	95.3	GOOD
95	Mo	2	115	2.56	ppb	3.15	13.17	90 - 110	97.3	GOOD
107	Ag	2	115	0.02	ppb	12.13	0.07	90 - 110	160.6	
111	Cd	2	115	0.04	ppb	26.11	0.10	90 - 110	196.3	
118	Sn	2	115	-0.09	ppb	9.11	-0.03	90 - 110	1484.7	
121	Sb	2	115	66.72	ppb	1.50	336.20	90 - 110	99.2	GOOD
137	Ba	2	115	13.90	ppb	0.07	69.47	90 - 110	100.0	GOOD
205	Tl	2	209	0.06	ppb	10.75	0.15	90 - 110	199.7	
208	Pb	2	209	0.07	ppb	4.46	0.33	90 - 110	111.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4468605.00	1.13	4008511.30	111.5	70 - 120	
45	Sc	1	114823.07	1.86	100020.03	114.8	70 - 120	
45	Sc	2	5395265.50	0.91	4946391.00	109.1	70 - 120	
72	Ge	1	70010.33	1.48	61823.22	113.2	70 - 120	
115	In	2	6020633.00	0.47	5661857.00	106.3	70 - 120	
209	Bi	2	4797183.00	0.85	4553307.50	105.4	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\116SMPL.D\116SMPL.D#

Date Acquired:	Jan 29 2014 09:32 pm	Sample Name:	**1401180-18A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	696.000	ppb	#REF!	1.04	2000.00	>RL
9	Be	2	45	0.021	ppb	#REF!	10.18	2000.00	ND
11	B	2	45	29.220	ppb	#REF!	0.38	2000.00	J
23	Na	1	45	56.060	ppb	#REF!	2.20	25000.00	ND
24	Mg	1	45	2.290	ppb	#REF!	7.12	25000.00	ND
27	Al	1	45	17.670	ppb	#REF!	6.61	10000.00	J
39	K	1	45	5.426	ppb	#REF!	2.13	25000.00	ND
44	Ca	2	45	41.770	ppb	#REF!	24.19	25000.00	ND
47	Ti	1	45	0.238	ppb	#REF!	45.83	2000.00	ND
51	V	1	45	0.102	ppb	#REF!	7.72	2000.00	ND
52	Cr	1	45	0.065	ppb	#REF!	9.25	2000.00	ND
55	Mn	1	45	0.082	ppb	#REF!	18.45	2000.00	ND
56	Fe	1	72	1.492	ppb	#REF!	12.21	10000.00	ND
59	Co	1	72	0.027	ppb	#REF!	21.14	2000.00	ND
60	Ni	1	72	0.058	ppb	#REF!	11.63	2000.00	ND
63	Cu	1	72	-0.112	ppb	#REF!	14.82	2000.00	ND
66	Zn	1	72	1.387	ppb	#REF!	3.75	2000.00	ND
75	As	1	72	0.820	ppb	#REF!	5.96	2000.00	ND
78	Se	1	72	-0.266	ppb	#REF!	15.07	2000.00	ND
88	Sr	2	115	0.120	ppb	#REF!	14.92	2000.00	ND
95	Mo	2	115	-0.147	ppb	#REF!	9.04	2000.00	ND
107	Ag	2	115	0.014	ppb	#REF!	17.40	500.00	ND
111	Cd	2	115	0.042	ppb	#REF!	18.44	2000.00	ND
118	Sn	2	115	-0.138	ppb	#REF!	12.73	2000.00	ND
121	Sb	2	115	0.197	ppb	#REF!	12.87	500.00	ND
137	Ba	2	115	0.090	ppb	#REF!	12.67	2000.00	ND
205	Tl	2	209	0.037	ppb	#REF!	11.92	2000.00	ND
208	Pb	2	209	0.023	ppb	#REF!	8.27	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4548336.00	0.59	4008511.30	113.5	70 - 120	
45	Sc	1	116698.43	0.73	100020.03	116.7	70 - 120	
45	Sc	2	5514334.00	1.49	4946391.00	111.5	70 - 120	
72	Ge	1	70565.02	0.96	61823.22	114.1	70 - 120	
115	In	2	6184164.00	1.78	5661857.00	109.2	70 - 120	
209	Bi	2	4936698.00	1.69	4553307.50	108.4	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\117SMPL.D\117SMPL.D#

Date Acquired:	Jan 29 2014 09:39 pm	Sample Name:	**1401180-25A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	1391.000	ppb	#REF!	0.42	2000.00	>RL
9	Be	2	45	0.019	ppb	#REF!	24.77	2000.00	ND
11	B	2	45	31.420	ppb	#REF!	1.17	2000.00	>RL
23	Na	1	45	59.930	ppb	#REF!	2.26	25000.00	ND
24	Mg	1	45	1.640	ppb	#REF!	10.16	25000.00	ND
27	Al	1	45	18.780	ppb	#REF!	5.96	10000.00	J
39	K	1	45	3.342	ppb	#REF!	2.84	25000.00	ND
44	Ca	2	45	28.540	ppb	#REF!	4.13	25000.00	ND
47	Ti	1	45	0.212	ppb	#REF!	57.72	2000.00	ND
51	V	1	45	0.122	ppb	#REF!	10.74	2000.00	ND
52	Cr	1	45	0.156	ppb	#REF!	5.97	2000.00	ND
55	Mn	1	45	0.092	ppb	#REF!	16.34	2000.00	ND
56	Fe	1	72	3.555	ppb	#REF!	10.34	10000.00	ND
59	Co	1	72	0.031	ppb	#REF!	12.03	2000.00	ND
60	Ni	1	72	0.068	ppb	#REF!	16.38	2000.00	ND
63	Cu	1	72	-0.047	ppb	#REF!	5.63	2000.00	ND
66	Zn	1	72	1.284	ppb	#REF!	9.58	2000.00	ND
75	As	1	72	0.854	ppb	#REF!	5.44	2000.00	ND
78	Se	1	72	-0.084	ppb	#REF!	32.14	2000.00	ND
88	Sr	2	115	0.105	ppb	#REF!	5.56	2000.00	ND
95	Mo	2	115	-0.188	ppb	#REF!	5.79	2000.00	ND
107	Ag	2	115	0.015	ppb	#REF!	23.83	500.00	ND
111	Cd	2	115	0.035	ppb	#REF!	50.39	2000.00	ND
118	Sn	2	115	-0.122	ppb	#REF!	9.69	2000.00	ND
121	Sb	2	115	0.083	ppb	#REF!	11.16	500.00	ND
137	Ba	2	115	0.109	ppb	#REF!	11.27	2000.00	ND
205	Tl	2	209	0.023	ppb	#REF!	4.59	2000.00	ND
208	Pb	2	209	0.029	ppb	#REF!	7.06	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4575585.50	0.64	4008511.30	114.1	70 - 120	
45	Sc	1	116562.65	1.35	100020.03	116.5	70 - 120	
45	Sc	2	5450446.50	0.22	4946391.00	110.2	70 - 120	
72	Ge	1	70433.32	0.99	61823.22	113.9	70 - 120	
115	In	2	6052703.00	0.66	5661857.00	106.9	70 - 120	
209	Bi	2	4840340.50	0.65	4553307.50	106.3	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\118SMPL.D\118SMPL.D#

Date Acquired:	Jan 29 2014 09:45 pm	Sample Name:	**1401180-11A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	25170.000	ppb	#REF!	1.37	2000.00	OUTCAL
9	Be	2	45	0.034	ppb	#REF!	9.16	2000.00	ND
11	B	2	45	177.000	ppb	#REF!	0.38	2000.00	>RL
23	Na	1	45	14620.000	ppb	#REF!	1.43	25000.00	>RL
24	Mg	1	45	5564.000	ppb	#REF!	2.18	25000.00	>RL
27	Al	1	45	14.230	ppb	#REF!	7.12	10000.00	J
39	K	1	45	1758.000	ppb	#REF!	2.09	25000.00	>RL
44	Ca	2	45	102200.000	ppb	#REF!	0.63	25000.00	OUTCAL
47	Ti	1	45	0.238	ppb	#REF!	91.64	2000.00	ND
51	V	1	45	1.299	ppb	#REF!	4.91	2000.00	ND
52	Cr	1	45	0.210	ppb	#REF!	14.39	2000.00	ND
55	Mn	1	45	3.472	ppb	#REF!	3.32	2000.00	J
56	Fe	1	72	20.620	ppb	#REF!	0.76	10000.00	ND
59	Co	1	72	0.082	ppb	#REF!	12.61	2000.00	ND
60	Ni	1	72	0.328	ppb	#REF!	8.74	2000.00	ND
63	Cu	1	72	0.411	ppb	#REF!	1.79	2000.00	ND
66	Zn	1	72	17.950	ppb	#REF!	1.30	2000.00	>RL
75	As	1	72	0.682	ppb	#REF!	2.08	2000.00	ND
78	Se	1	72	0.973	ppb	#REF!	12.64	2000.00	ND
88	Sr	2	115	539.200	ppb	#REF!	1.36	2000.00	>RL
95	Mo	2	115	0.561	ppb	#REF!	3.91	2000.00	ND
107	Ag	2	115	0.032	ppb	#REF!	12.75	500.00	ND
111	Cd	2	115	0.120	ppb	#REF!	4.34	2000.00	ND
118	Sn	2	115	0.479	ppb	#REF!	2.82	2000.00	ND
121	Sb	2	115	0.596	ppb	#REF!	7.00	500.00	ND
137	Ba	2	115	54.190	ppb	#REF!	1.88	2000.00	>RL
205	Tl	2	209	0.046	ppb	#REF!	9.26	2000.00	ND
208	Pb	2	209	0.205	ppb	#REF!	4.44	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4376998.50	1.59	4008511.30	109.2	70 - 120	
45	Sc	1	116231.34	1.46	100020.03	116.2	70 - 120	
45	Sc	2	5446192.50	1.04	4946391.00	110.1	70 - 120	
72	Ge	1	69552.11	0.90	61823.22	112.5	70 - 120	
115	In	2	5960009.50	1.30	5661857.00	105.3	70 - 120	
209	Bi	2	4624019.50	1.46	4553307.50	101.6	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\119SMPL.D\119SMPL.D#

Date Acquired:	Jan 29 2014 09:51 pm	Sample Name:	**1401180-12A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	28800.000	ppb	#REF!	1.88	2000.00	OUTCAL
9	Be	2	45	0.019	ppb	#REF!	13.77	2000.00	ND
11	B	2	45	590.600	ppb	#REF!	3.55	2000.00	>RL
23	Na	1	45	26980.000	ppb	#REF!	1.04	25000.00	OUTCAL
24	Mg	1	45	6427.000	ppb	#REF!	1.95	25000.00	>RL
27	Al	1	45	18.090	ppb	#REF!	1.86	10000.00	J
39	K	1	45	7143.000	ppb	#REF!	1.39	25000.00	>RL
44	Ca	2	45	111900.000	ppb	#REF!	2.65	25000.00	OUTCAL
47	Ti	1	45	0.469	ppb	#REF!	50.00	2000.00	ND
51	V	1	45	0.356	ppb	#REF!	8.45	2000.00	ND
52	Cr	1	45	0.180	ppb	#REF!	13.19	2000.00	ND
55	Mn	1	45	1.175	ppb	#REF!	4.61	2000.00	ND
56	Fe	1	72	8.453	ppb	#REF!	4.39	10000.00	ND
59	Co	1	72	0.046	ppb	#REF!	3.57	2000.00	ND
60	Ni	1	72	0.649	ppb	#REF!	2.20	2000.00	ND
63	Cu	1	72	0.238	ppb	#REF!	2.05	2000.00	ND
66	Zn	1	72	25.400	ppb	#REF!	2.07	2000.00	>RL
75	As	1	72	0.946	ppb	#REF!	3.47	2000.00	ND
78	Se	1	72	1.447	ppb	#REF!	10.70	2000.00	ND
88	Sr	2	115	596.800	ppb	#REF!	2.82	2000.00	>RL
95	Mo	2	115	0.017	ppb	#REF!	14.40	2000.00	ND
107	Ag	2	115	0.023	ppb	#REF!	22.69	500.00	ND
111	Cd	2	115	0.131	ppb	#REF!	26.44	2000.00	ND
118	Sn	2	115	-0.117	ppb	#REF!	15.50	2000.00	ND
121	Sb	2	115	1.163	ppb	#REF!	4.71	500.00	J
137	Ba	2	115	67.180	ppb	#REF!	1.93	2000.00	>RL
205	Tl	2	209	0.016	ppb	#REF!	4.94	2000.00	ND
208	Pb	2	209	0.109	ppb	#REF!	4.83	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4209043.50	2.21	4008511.30	105.0	70 - 120	
45	Sc	1	112973.80	1.03	100020.03	113.0	70 - 120	
45	Sc	2	5179301.00	2.78	4946391.00	104.7	70 - 120	
72	Ge	1	67892.24	1.00	61823.22	109.8	70 - 120	
115	In	2	5664002.50	2.38	5661857.00	100.0	70 - 120	
209	Bi	2	4407013.00	2.42	4553307.50	96.8	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\120SMPL.D\120SMPL.D#

Date Acquired:	Jan 29 2014 09:57 pm	Sample Name:	**1401180-13A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	18280.000	ppb	#REF!	0.16	2000.00	OUTCAL
9	Be	2	45	0.024	ppb	#REF!	9.44	2000.00	ND
11	B	2	45	219.900	ppb	#REF!	1.10	2000.00	>RL
23	Na	1	45	67370.000	ppb	#REF!	2.17	25000.00	OUTCAL
24	Mg	1	45	15270.000	ppb	#REF!	2.16	25000.00	>RL
27	Al	1	45	36.980	ppb	#REF!	7.62	10000.00	>RL
39	K	1	45	5952.000	ppb	#REF!	2.27	25000.00	>RL
44	Ca	2	45	135600.000	ppb	#REF!	0.68	25000.00	OUTCAL
47	Ti	1	45	0.729	ppb	#REF!	67.59	2000.00	ND
51	V	1	45	3.424	ppb	#REF!	4.19	2000.00	J
52	Cr	1	45	0.148	ppb	#REF!	13.73	2000.00	ND
55	Mn	1	45	5.405	ppb	#REF!	4.32	2000.00	J
56	Fe	1	72	69.370	ppb	#REF!	1.95	10000.00	J
59	Co	1	72	0.164	ppb	#REF!	7.26	2000.00	ND
60	Ni	1	72	2.980	ppb	#REF!	3.90	2000.00	ND
63	Cu	1	72	0.253	ppb	#REF!	3.31	2000.00	ND
66	Zn	1	72	5.598	ppb	#REF!	4.58	2000.00	>RL
75	As	1	72	1.684	ppb	#REF!	6.34	2000.00	ND
78	Se	1	72	12.960	ppb	#REF!	7.68	2000.00	>RL
88	Sr	2	115	754.200	ppb	#REF!	0.83	2000.00	>RL
95	Mo	2	115	0.512	ppb	#REF!	4.74	2000.00	ND
107	Ag	2	115	0.026	ppb	#REF!	6.93	500.00	ND
111	Cd	2	115	0.063	ppb	#REF!	5.21	2000.00	ND
118	Sn	2	115	-0.141	ppb	#REF!	3.77	2000.00	ND
121	Sb	2	115	1.412	ppb	#REF!	2.34	500.00	J
137	Ba	2	115	94.270	ppb	#REF!	0.30	2000.00	>RL
205	Tl	2	209	0.023	ppb	#REF!	17.42	2000.00	ND
208	Pb	2	209	0.296	ppb	#REF!	3.02	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4268173.00	0.19	4008511.30	106.5	70 - 120	
45	Sc	1	111597.38	1.77	100020.03	111.6	70 - 120	
45	Sc	2	5314182.50	0.96	4946391.00	107.4	70 - 120	
72	Ge	1	65922.04	1.60	61823.22	106.6	70 - 120	
115	In	2	5742056.50	1.01	5661857.00	101.4	70 - 120	
209	Bi	2	4412459.00	0.64	4553307.50	96.9	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\121SMPL.D\121SMPL.D#

Date Acquired:	Jan 29 2014 10:03 pm	Sample Name:	**1401180-14A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	15110.000	ppb	#REF!	1.85	2000.00	OUTCAL
9	Be	2	45	0.044	ppb	#REF!	23.31	2000.00	ND
11	B	2	45	268.500	ppb	#REF!	2.58	2000.00	>RL
23	Na	1	45	28570.000	ppb	#REF!	1.22	25000.00	OUTCAL
24	Mg	1	45	5954.000	ppb	#REF!	1.95	25000.00	>RL
27	Al	1	45	146.000	ppb	#REF!	1.91	10000.00	>RL
39	K	1	45	1276.000	ppb	#REF!	1.28	25000.00	>RL
44	Ca	2	45	180800.000	ppb	#REF!	2.75	25000.00	OUTCAL
47	Ti	1	45	1.857	ppb	#REF!	14.84	2000.00	ND
51	V	1	45	2.689	ppb	#REF!	1.35	2000.00	ND
52	Cr	1	45	0.530	ppb	#REF!	7.30	2000.00	ND
55	Mn	1	45	53.390	ppb	#REF!	3.13	2000.00	>RL
56	Fe	1	72	185.300	ppb	#REF!	1.66	10000.00	>RL
59	Co	1	72	0.560	ppb	#REF!	1.06	2000.00	ND
60	Ni	1	72	0.835	ppb	#REF!	5.53	2000.00	ND
63	Cu	1	72	1.256	ppb	#REF!	4.01	2000.00	ND
66	Zn	1	72	4.090	ppb	#REF!	3.55	2000.00	J
75	As	1	72	1.662	ppb	#REF!	3.10	2000.00	ND
78	Se	1	72	20.070	ppb	#REF!	2.28	2000.00	>RL
88	Sr	2	115	673.700	ppb	#REF!	3.13	2000.00	>RL
95	Mo	2	115	0.275	ppb	#REF!	10.74	2000.00	ND
107	Ag	2	115	0.054	ppb	#REF!	23.76	500.00	ND
111	Cd	2	115	0.108	ppb	#REF!	19.92	2000.00	ND
118	Sn	2	115	-0.088	ppb	#REF!	16.81	2000.00	ND
121	Sb	2	115	1.277	ppb	#REF!	9.46	500.00	J
137	Ba	2	115	61.750	ppb	#REF!	2.63	2000.00	>RL
205	Tl	2	209	0.017	ppb	#REF!	9.74	2000.00	ND
208	Pb	2	209	1.500	ppb	#REF!	2.45	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3929786.30	1.70	4008511.30	98.0	70 - 120	
45	Sc	1	108324.07	1.38	100020.03	108.3	70 - 120	
45	Sc	2	4837898.50	2.39	4946391.00	97.8	70 - 120	
72	Ge	1	64494.27	1.36	61823.22	104.3	70 - 120	
115	In	2	5312652.50	1.70	5661857.00	93.8	70 - 120	
209	Bi	2	4102175.00	2.15	4553307.50	90.1	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\122SMPL.D\122SMPL.D#

Date Acquired:	Jan 29 2014 10:09 pm	Sample Name:	**1401180-15A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	10010.000	ppb	#REF!	0.81	2000.00	OUTCAL
9	Be	2	45	0.056	ppb	#REF!	14.20	2000.00	ND
11	B	2	45	151.500	ppb	#REF!	1.01	2000.00	>RL
23	Na	1	45	40970.000	ppb	#REF!	1.37	25000.00	OUTCAL
24	Mg	1	45	7446.000	ppb	#REF!	2.47	25000.00	>RL
27	Al	1	45	147.600	ppb	#REF!	2.46	10000.00	>RL
39	K	1	45	3077.000	ppb	#REF!	2.14	25000.00	>RL
44	Ca	2	45	87810.000	ppb	#REF!	1.42	25000.00	OUTCAL
47	Ti	1	45	1.218	ppb	#REF!	15.62	2000.00	ND
51	V	1	45	5.070	ppb	#REF!	3.21	2000.00	J
52	Cr	1	45	0.291	ppb	#REF!	6.58	2000.00	ND
55	Mn	1	45	184.200	ppb	#REF!	2.61	2000.00	>RL
56	Fe	1	72	743.500	ppb	#REF!	2.39	10000.00	>RL
59	Co	1	72	0.778	ppb	#REF!	5.90	2000.00	ND
60	Ni	1	72	1.300	ppb	#REF!	2.96	2000.00	ND
63	Cu	1	72	0.909	ppb	#REF!	2.66	2000.00	ND
66	Zn	1	72	8.115	ppb	#REF!	4.03	2000.00	>RL
75	As	1	72	12.390	ppb	#REF!	2.28	2000.00	>RL
78	Se	1	72	20.010	ppb	#REF!	2.89	2000.00	>RL
88	Sr	2	115	357.000	ppb	#REF!	1.15	2000.00	>RL
95	Mo	2	115	-0.151	ppb	#REF!	9.79	2000.00	ND
107	Ag	2	115	0.029	ppb	#REF!	12.92	500.00	ND
111	Cd	2	115	0.083	ppb	#REF!	24.59	2000.00	ND
118	Sn	2	115	-0.130	ppb	#REF!	2.97	2000.00	ND
121	Sb	2	115	12.830	ppb	#REF!	2.02	500.00	>RL
137	Ba	2	115	63.480	ppb	#REF!	1.11	2000.00	>RL
205	Tl	2	209	0.006	ppb	#REF!	19.72	2000.00	ND
208	Pb	2	209	1.325	ppb	#REF!	2.23	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4007754.50	1.26	4008511.30	100.0	70 - 120	
45	Sc	1	100605.57	1.77	100020.03	100.6	70 - 120	
45	Sc	2	4813269.00	0.74	4946391.00	97.3	70 - 120	
72	Ge	1	60850.73	0.89	61823.22	98.4	70 - 120	
115	In	2	5250668.00	1.05	5661857.00	92.7	70 - 120	
209	Bi	2	4096943.30	0.65	4553307.50	90.0	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\123SMPL.D\123SMPL.D#

Date Acquired:	Jan 29 2014 10:15 pm	Sample Name:	**1401180-16A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	46120.000	ppb	#REF!	3.18	2000.00	OUTCAL
9	Be	2	45	0.021	ppb	#REF!	26.45	2000.00	ND
11	B	2	45	272.300	ppb	#REF!	4.10	2000.00	>RL
23	Na	1	45	126600.000	ppb	#REF!	1.58	25000.00	OUTCAL
24	Mg	1	45	17940.000	ppb	#REF!	1.91	25000.00	>RL
27	Al	1	45	49.650	ppb	#REF!	1.83	10000.00	>RL
39	K	1	45	3413.000	ppb	#REF!	1.84	25000.00	>RL
44	Ca	2	45	170100.000	ppb	#REF!	3.37	25000.00	OUTCAL
47	Ti	1	45	0.579	ppb	#REF!	22.92	2000.00	ND
51	V	1	45	1.323	ppb	#REF!	1.45	2000.00	ND
52	Cr	1	45	0.193	ppb	#REF!	7.51	2000.00	ND
55	Mn	1	45	70.430	ppb	#REF!	2.27	2000.00	>RL
56	Fe	1	72	234.800	ppb	#REF!	2.32	10000.00	>RL
59	Co	1	72	3.911	ppb	#REF!	1.69	2000.00	J
60	Ni	1	72	7.281	ppb	#REF!	3.41	2000.00	J
63	Cu	1	72	0.381	ppb	#REF!	11.60	2000.00	ND
66	Zn	1	72	4.508	ppb	#REF!	3.56	2000.00	J
75	As	1	72	2.648	ppb	#REF!	3.49	2000.00	J
78	Se	1	72	1.717	ppb	#REF!	12.16	2000.00	ND
88	Sr	2	115	1298.000	ppb	#REF!	3.97	2000.00	>RL
95	Mo	2	115	0.473	ppb	#REF!	9.25	2000.00	ND
107	Ag	2	115	0.039	ppb	#REF!	36.80	500.00	ND
111	Cd	2	115	0.043	ppb	#REF!	39.20	2000.00	ND
118	Sn	2	115	-0.151	ppb	#REF!	11.27	2000.00	ND
121	Sb	2	115	0.809	ppb	#REF!	2.46	500.00	J
137	Ba	2	115	25.460	ppb	#REF!	2.94	2000.00	>RL
205	Tl	2	209	0.021	ppb	#REF!	9.80	2000.00	ND
208	Pb	2	209	0.877	ppb	#REF!	3.76	2000.00	J

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3985387.80	2.60	4008511.30	99.4	70 - 120	
45	Sc	1	102968.93	1.50	100020.03	102.9	70 - 120	
45	Sc	2	4949007.50	2.97	4946391.00	100.1	70 - 120	
72	Ge	1	60290.92	1.40	61823.22	97.5	70 - 120	
115	In	2	5327400.50	3.26	5661857.00	94.1	70 - 120	
209	Bi	2	4006712.00	3.60	4553307.50	88.0	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\124SMPL.D\124SMPL.D#

Date Acquired:	Jan 29 2014 10:21 pm	Sample Name:	**1401180-17A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	11920.000	ppb	#REF!	0.94	2000.00	OUTCAL
9	Be	2	45	0.037	ppb	#REF!	6.45	2000.00	ND
11	B	2	45	180.200	ppb	#REF!	2.20	2000.00	>RL
23	Na	1	45	11820.000	ppb	#REF!	3.41	25000.00	>RL
24	Mg	1	45	3067.000	ppb	#REF!	2.76	25000.00	>RL
27	Al	1	45	126.100	ppb	#REF!	1.95	10000.00	>RL
39	K	1	45	4364.000	ppb	#REF!	2.55	25000.00	>RL
44	Ca	2	45	93610.000	ppb	#REF!	2.01	25000.00	OUTCAL
47	Ti	1	45	1.724	ppb	#REF!	26.96	2000.00	ND
51	V	1	45	2.628	ppb	#REF!	4.83	2000.00	ND
52	Cr	1	45	0.432	ppb	#REF!	15.75	2000.00	ND
55	Mn	1	45	475.900	ppb	#REF!	3.39	2000.00	>RL
56	Fe	1	72	1246.000	ppb	#REF!	3.32	10000.00	>RL
59	Co	1	72	3.234	ppb	#REF!	3.87	2000.00	J
60	Ni	1	72	3.563	ppb	#REF!	5.54	2000.00	J
63	Cu	1	72	2.122	ppb	#REF!	1.24	2000.00	J
66	Zn	1	72	7.419	ppb	#REF!	3.53	2000.00	>RL
75	As	1	72	4.414	ppb	#REF!	4.34	2000.00	J
78	Se	1	72	0.464	ppb	#REF!	26.83	2000.00	ND
88	Sr	2	115	289.200	ppb	#REF!	2.26	2000.00	>RL
95	Mo	2	115	0.806	ppb	#REF!	4.71	2000.00	ND
107	Ag	2	115	0.029	ppb	#REF!	7.37	500.00	ND
111	Cd	2	115	0.151	ppb	#REF!	20.77	2000.00	ND
118	Sn	2	115	-0.127	ppb	#REF!	5.68	2000.00	ND
121	Sb	2	115	16.920	ppb	#REF!	1.98	500.00	>RL
137	Ba	2	115	73.240	ppb	#REF!	2.22	2000.00	>RL
205	Tl	2	209	0.003	ppb	#REF!	6.49	2000.00	ND
208	Pb	2	209	1.594	ppb	#REF!	3.04	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3988240.00	1.74	4008511.30	99.5	70 - 120	
45	Sc	1	100261.41	2.34	100020.03	100.2	70 - 120	
45	Sc	2	4870165.50	1.64	4946391.00	98.5	70 - 120	
72	Ge	1	61022.28	2.42	61823.22	98.7	70 - 120	
115	In	2	5387585.00	1.79	5661857.00	95.2	70 - 120	
209	Bi	2	4210408.50	1.53	4553307.50	92.5	70 - 120	

PDS QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\125_PDS.D\125_PDS.D#

Date Acquired:	Jan 29 2014 10:27 pm	Sample Name:	**1401180-04A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	5388.00	ppb	0.16	#########	200	75-125	######	Fail
9	Be	2	45	227.90	ppb	0.79	0.09	200	75-125	113.9	
11	B	2	45	239.20	ppb	0.67	35.66	200	75-125	101.8	
23	Na	1	45	12260.00	ppb	1.55	6800.00	5000	75-125	109.2	
24	Mg	1	45	10180.00	ppb	1.14	4974.00	5000	75-125	104.1	
27	Al	1	45	5418.00	ppb	1.87	50.85	5000	75-125	107.3	
39	K	1	45	7267.00	ppb	1.35	1841.00	5000	75-125	108.5	
44	Ca	2	45	106400.00	ppb	1.89	105400.00	5000	75-125	20.0	Fail
47	Ti	1	45	212.90	ppb	4.00	1.57	200	75-125	105.7	
51	V	1	45	208.00	ppb	1.46	1.80	200	75-125	103.1	
52	Cr	1	45	205.90	ppb	1.85	0.16	200	75-125	102.9	
55	Mn	1	45	238.60	ppb	1.80	20.28	200	75-125	109.2	
56	Fe	1	72	5436.00	ppb	1.87	74.40	5000	75-125	107.2	
59	Co	1	72	209.80	ppb	1.43	0.45	200	75-125	104.7	
60	Ni	1	72	212.80	ppb	1.75	0.73	200	75-125	106.0	
63	Cu	1	72	202.70	ppb	1.16	1.42	200	75-125	100.6	
66	Zn	1	72	212.30	ppb	1.43	2.57	200	75-125	104.9	
75	As	1	72	220.50	ppb	1.31	1.84	200	75-125	109.3	
78	Se	1	72	230.80	ppb	2.35	6.48	200	75-125	112.2	
88	Sr	2	115	443.40	ppb	2.13	233.70	200	75-125	104.9	
95	Mo	2	115	217.90	ppb	1.21	13.17	200	75-125	102.4	
107	Ag	2	115	195.80	ppb	1.57	0.07	200	75-125	97.9	
111	Cd	2	115	206.80	ppb	1.10	0.10	200	75-125	103.4	
118	Sn	2	115	212.50	ppb	1.11	-0.03	200	75-125	106.3	
121	Sb	2	115	538.90	ppb	1.31	336.20	200	75-125	101.3	
137	Ba	2	115	273.00	ppb	1.48	69.47	200	75-125	101.8	
205	Tl	2	209	218.60	ppb	0.55	0.15	200	75-125	109.2	
208	Pb	2	209	205.60	ppb	1.00	0.33	200	75-125	102.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3892914.00	1.06	4008511.30	97.1	70 - 120	
45	Sc	1	99481.28	0.89	100020.03	99.5	70 - 120	
45	Sc	2	4711718.00	0.77	4946391.00	95.3	70 - 120	
72	Ge	1	60805.20	1.14	61823.22	98.4	70 - 120	
115	In	2	5168678.00	1.28	5661857.00	91.3	70 - 120	
209	Bi	2	4065737.00	0.97	4553307.50	89.3	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\126_MS.D\126_MS.D#

Date Acquired:	Jan 29 2014 10:33 pm	Sample Name:	**1401180-04A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	258800.00	ppb	0.42	########	200	80-120	######	Fail
9	Be	2	45	222.90	ppb	0.52	0.09	200	80-120	111.4	
11	B	2	45	247.80	ppb	0.67	35.66	200	80-120	106.1	
23	Na	1	45	12510.00	ppb	0.79	6800.00	5000	80-120	114.2	
24	Mg	1	45	10370.00	ppb	1.28	4974.00	5000	80-120	107.9	
27	Al	1	45	5416.00	ppb	1.57	50.85	5000	80-120	107.3	
39	K	1	45	7491.00	ppb	1.23	1841.00	5000	80-120	113.0	
44	Ca	2	45	109900.00	ppb	0.61	########	5000	80-120	90.0	
47	Ti	1	45	223.00	ppb	1.16	1.57	200	80-120	110.7	
51	V	1	45	210.70	ppb	1.11	1.80	200	80-120	104.5	
52	Cr	1	45	204.30	ppb	1.20	0.16	200	80-120	102.1	
55	Mn	1	45	227.40	ppb	1.18	20.28	200	80-120	103.6	
56	Fe	1	72	5497.00	ppb	1.43	74.40	5000	80-120	108.5	
59	Co	1	72	208.90	ppb	1.08	0.45	200	80-120	104.2	
60	Ni	1	72	213.10	ppb	0.82	0.73	200	80-120	106.2	
63	Cu	1	72	205.80	ppb	0.76	1.42	200	80-120	102.2	
66	Zn	1	72	214.00	ppb	1.55	2.57	200	80-120	105.7	
75	As	1	72	223.50	ppb	0.51	1.84	200	80-120	110.8	
78	Se	1	72	226.50	ppb	1.62	6.48	200	80-120	110.0	
88	Sr	2	115	442.40	ppb	0.70	233.70	200	80-120	104.4	
95	Mo	2	115	229.20	ppb	0.28	13.17	200	80-120	108.0	
107	Ag	2	115	205.30	ppb	0.18	0.07	200	80-120	102.6	
111	Cd	2	115	205.50	ppb	0.57	0.10	200	80-120	102.7	
118	Sn	2	115	211.00	ppb	0.25	-0.03	200	80-120	105.5	
121	Sb	2	115	564.10	ppb	0.53	336.20	200	80-120	113.9	
137	Ba	2	115	272.70	ppb	0.18	69.47	200	80-120	101.6	
205	Tl	2	209	218.90	ppb	0.42	0.15	200	80-120	109.4	
208	Pb	2	209	205.30	ppb	0.16	0.33	200	80-120	102.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3875312.00	1.09	4008511.30	96.7	70 - 120	
45	Sc	1	101330.44	1.83	100020.03	101.3	70 - 120	
45	Sc	2	4885733.00	0.51	4946391.00	98.8	70 - 120	
72	Ge	1	61593.29	1.10	61823.22	99.6	70 - 120	
115	In	2	5415370.00	0.07	5661857.00	95.6	70 - 120	
209	Bi	2	4253613.00	0.55	4553307.50	93.4	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\127_MS.D\127_MS.D#

Date Acquired:	Jan 29 2014 10:39 pm	Sample Name:	**1401180-04A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	257900.00	ppb	0.76	########	200	80-120	######	Fail
9	Be	2	45	222.40	ppb	0.67	0.09	200	80-120	111.2	
11	B	2	45	247.20	ppb	0.85	35.66	200	80-120	105.8	
23	Na	1	45	12560.00	ppb	0.31	6800.00	5000	80-120	115.2	
24	Mg	1	45	10390.00	ppb	1.57	4974.00	5000	80-120	108.3	
27	Al	1	45	5396.00	ppb	2.32	50.85	5000	80-120	106.9	
39	K	1	45	7494.00	ppb	1.25	1841.00	5000	80-120	113.1	
44	Ca	2	45	109200.00	ppb	1.79	########	5000	80-120	76.0	Fail
47	Ti	1	45	215.50	ppb	2.91	1.57	200	80-120	107.0	
51	V	1	45	211.70	ppb	1.84	1.80	200	80-120	105.0	
52	Cr	1	45	207.10	ppb	2.17	0.16	200	80-120	103.5	
55	Mn	1	45	225.10	ppb	1.71	20.28	200	80-120	102.4	
56	Fe	1	72	5597.00	ppb	2.31	74.40	5000	80-120	110.5	
59	Co	1	72	211.70	ppb	1.95	0.45	200	80-120	105.6	
60	Ni	1	72	216.30	ppb	1.82	0.73	200	80-120	107.8	
63	Cu	1	72	206.50	ppb	1.59	1.42	200	80-120	102.5	
66	Zn	1	72	220.30	ppb	1.70	2.57	200	80-120	108.9	
75	As	1	72	225.40	ppb	1.58	1.84	200	80-120	111.8	
78	Se	1	72	231.30	ppb	1.08	6.48	200	80-120	112.4	
88	Sr	2	115	449.00	ppb	0.64	233.70	200	80-120	107.7	
95	Mo	2	115	231.40	ppb	1.54	13.17	200	80-120	109.1	
107	Ag	2	115	205.30	ppb	1.16	0.07	200	80-120	102.6	
111	Cd	2	115	207.00	ppb	1.22	0.10	200	80-120	103.5	
118	Sn	2	115	212.00	ppb	0.70	-0.03	200	80-120	106.0	
121	Sb	2	115	563.10	ppb	0.84	336.20	200	80-120	113.4	
137	Ba	2	115	275.20	ppb	1.03	69.47	200	80-120	102.9	
205	Tl	2	209	221.80	ppb	0.83	0.15	200	80-120	110.8	
208	Pb	2	209	207.60	ppb	1.10	0.33	200	80-120	103.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3946897.80	1.37	4008511.30	98.5	70 - 120	
45	Sc	1	103384.31	0.60	100020.03	103.4	70 - 120	
45	Sc	2	4974004.50	0.92	4946391.00	100.6	70 - 120	
72	Ge	1	62466.33	1.00	61823.22	101.0	70 - 120	
115	In	2	5451349.50	0.92	5661857.00	96.3	70 - 120	
209	Bi	2	4279886.00	0.65	4553307.50	94.0	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\128CCV1.D\128CCV1.D#

Date Acquired:	Jan 29 2014 10:45 pm	Sample Name:	**CCV4-140129**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	28.90	ppb	0.74	200.00	90 -	110	14.5	Fail
9	Be	2	45	232.10	ppb	0.24	200.00	90 -	110	116.1	Fail
11	B	2	45	218.10	ppb	0.47	200.00	90 -	110	109.1	
23	Na	1	45	5524.00	ppb	3.07	5000.00	90 -	110	110.5	Fail
24	Mg	1	45	5251.00	ppb	2.24	5000.00	90 -	110	105.0	
27	Al	1	45	5434.00	ppb	2.69	5000.00	90 -	110	108.7	
39	K	1	45	5542.00	ppb	2.00	5000.00	90 -	110	110.8	Fail
44	Ca	2	45	5826.00	ppb	0.77	5000.00	90 -	110	116.5	Fail
47	Ti	1	45	214.10	ppb	3.62	200.00	90 -	110	107.1	
51	V	1	45	206.90	ppb	2.29	200.00	90 -	110	103.5	
52	Cr	1	45	209.30	ppb	2.90	200.00	90 -	110	104.7	
55	Mn	1	45	221.70	ppb	1.91	200.00	90 -	110	110.9	Fail
56	Fe	1	72	5537.00	ppb	2.56	5000.00	90 -	110	110.7	Fail
59	Co	1	72	214.30	ppb	1.85	200.00	90 -	110	107.2	
60	Ni	1	72	216.70	ppb	2.35	200.00	90 -	110	108.4	
63	Cu	1	72	213.70	ppb	1.74	200.00	90 -	110	106.9	
66	Zn	1	72	220.20	ppb	3.10	200.00	90 -	110	110.1	Fail
75	As	1	72	219.20	ppb	2.08	200.00	90 -	110	109.6	
78	Se	1	72	225.40	ppb	2.74	200.00	90 -	110	112.7	Fail
88	Sr	2	115	225.10	ppb	0.79	200.00	90 -	110	112.6	Fail
95	Mo	2	115	217.50	ppb	0.70	200.00	90 -	110	108.8	
107	Ag	2	115	206.80	ppb	1.02	200.00	90 -	110	103.4	
111	Cd	2	115	211.60	ppb	0.75	200.00	90 -	110	105.8	
118	Sn	2	115	211.20	ppb	0.79	200.00	90 -	110	105.6	
121	Sb	2	115	205.80	ppb	0.96	200.00	90 -	110	102.9	
137	Ba	2	115	206.20	ppb	0.93	200.00	90 -	110	103.1	
205	Tl	2	209	222.90	ppb	0.79	200.00	90 -	110	111.5	Fail
208	Pb	2	209	215.10	ppb	2.27	200.00	90 -	110	107.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4223356.50	1.49	4008511.30	105.4	70 -	120		
45	Sc	1	107838.63	1.51	100020.03	107.8	70 -	120		
45	Sc	2	5182855.50	1.00	4946391.00	104.8	70 -	120		
72	Ge	1	65329.08	1.54	61823.22	105.7	70 -	120		
115	In	2	5772083.00	0.54	5661857.00	101.9	70 -	120		
209	Bi	2	4564059.00	0.35	4553307.50	100.2	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\134LCVL.D\134LCVL.D#

Date Acquired:	Jan 29 2014 11:21 pm	Sample Name:	**LCVL4-140129**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	1690.00	ppb	0.37	5.00	70 -	130	######	Fail
9	Be	2	45	1.25	ppb	5.27	1.00	70 -	130	124.7	
11	B	2	45	21.61	ppb	0.79	20.00	70 -	130	108.1	
23	Na	1	45	109.40	ppb	1.38	100.00	70 -	130	109.4	
24	Mg	1	45	104.40	ppb	2.16	100.00	70 -	130	104.4	
27	Al	1	45	109.90	ppb	4.18	100.00	70 -	130	109.9	
39	K	1	45	117.50	ppb	0.94	100.00	70 -	130	117.5	
44	Ca	2	45	114.10	ppb	2.87	100.00	70 -	130	114.1	
47	Ti	1	45	5.10	ppb	16.08	5.00	70 -	130	102.0	
51	V	1	45	1.09	ppb	0.73	1.00	70 -	130	109.0	
52	Cr	1	45	5.20	ppb	2.11	5.00	70 -	130	104.0	
55	Mn	1	45	5.57	ppb	2.56	5.00	70 -	130	111.5	
56	Fe	1	72	110.50	ppb	1.60	100.00	70 -	130	110.5	
59	Co	1	72	5.32	ppb	1.62	5.00	70 -	130	106.4	
60	Ni	1	72	5.60	ppb	4.86	5.00	70 -	130	111.9	
63	Cu	1	72	5.28	ppb	0.99	5.00	70 -	130	105.6	
66	Zn	1	72	5.32	ppb	2.46	5.00	70 -	130	106.3	
75	As	1	72	5.62	ppb	2.33	5.00	70 -	130	112.4	
78	Se	1	72	6.05	ppb	4.12	5.00	70 -	130	121.0	
88	Sr	2	115	5.36	ppb	1.48	5.00	70 -	130	107.2	
95	Mo	2	115	4.91	ppb	2.16	5.00	70 -	130	98.2	
107	Ag	2	115	2.12	ppb	0.96	2.00	70 -	130	106.2	
111	Cd	2	115	1.11	ppb	5.21	1.00	70 -	130	110.5	
118	Sn	2	115	5.30	ppb	1.54	5.00	70 -	130	106.0	
121	Sb	2	115	2.30	ppb	1.12	2.00	70 -	130	114.8	
137	Ba	2	115	5.15	ppb	1.91	5.00	70 -	130	102.9	
205	Tl	2	209	1.09	ppb	3.14	1.00	70 -	130	108.7	
208	Pb	2	209	1.07	ppb	1.51	1.00	70 -	130	106.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4213713.50	1.32	4008511.30	105.1	70 -	120		
45	Sc	1	104815.66	1.17	100020.03	104.8	70 -	120		
45	Sc	2	4947525.50	0.02	4946391.00	100.0	70 -	120		
72	Ge	1	63697.72	1.13	61823.22	103.0	70 -	120		
115	In	2	5497970.50	0.52	5661857.00	97.1	70 -	120		
209	Bi	2	4405655.00	0.89	4553307.50	96.8	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\136_CCB.D\136_CCB.D#

Date Acquired:	Jan 29 2014 11:33 pm	Sample Name:	**CCB4-140129**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	2222.000	ppb	0.83	2.00	2.00	Failsoil
9	Be	2	45	0.019	ppb	26.23	0.10	0.30	
11	B	2	45	-0.190	ppb	3.52	10.00	10.00	
23	Na	1	45	0.973	ppb	8.04	50.00	#####	
24	Mg	1	45	-2.077	ppb	18.92	50.00	#####	
27	Al	1	45	-1.018	ppb	21.26	50.00	10.00	
39	K	1	45	7.706	ppb	0.43	50.00	#####	
44	Ca	2	45	2.847	ppb	7.12	50.00	#####	
47	Ti	1	45	-0.001	ppb	173.20	4.00	3.00	
51	V	1	45	0.086	ppb	5.41	4.00	3.00	
52	Cr	1	45	0.022	ppb	19.27	2.00	2.00	
55	Mn	1	45	0.026	ppb	16.41	2.00	3.00	
56	Fe	1	72	-0.325	ppb	17.21	50.00	50.00	
59	Co	1	72	0.015	ppb	17.59	2.00	3.00	
60	Ni	1	72	0.006	ppb	25.70	2.00	3.00	
63	Cu	1	72	-0.124	ppb	3.47	2.00	2.00	
66	Zn	1	72	-0.343	ppb	24.32	4.00	2.00	
75	As	1	72	0.027	ppb	12.26	2.00	2.00	
78	Se	1	72	-0.098	ppb	14.42	0.60	2.00	
88	Sr	2	115	0.021	ppb	22.31	4.00	3.00	
95	Mo	2	115	-0.203	ppb	17.62	2.00	2.00	
107	Ag	2	115	0.014	ppb	10.07	0.40	1.00	
111	Cd	2	115	0.013	ppb	42.28	0.40	0.30	
118	Sn	2	115	-0.095	ppb	16.72	4.00	3.00	
121	Sb	2	115	0.119	ppb	3.35	2.00	0.80	
137	Ba	2	115	0.008	ppb	32.74	2.00	3.00	
205	Tl	2	209	0.024	ppb	6.76	2.00	0.50	
208	Pb	2	209	0.008	ppb	14.42	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4284526.50	0.81	4008511.30	106.9	70 - 120	
45	Sc	1	105114.78	0.96	100020.03	105.1	70 - 120	
45	Sc	2	4950701.50	0.34	4946391.00	100.1	70 - 120	
72	Ge	1	63889.43	1.24	61823.22	103.3	70 - 120	
115	In	2	5493474.50	1.47	5661857.00	97.0	70 - 120	
209	Bi	2	4365726.50	0.91	4553307.50	95.9	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\137SMPL.D\137SMPL.D#

Date Acquired:	Jan 29 2014 11:39 pm	Sample Name:	**1401180-19A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	16820.000	ppb	#REF!	0.34	2000.00	OUTCAL
9	Be	2	45	0.032	ppb	#REF!	28.67	2000.00	ND
11	B	2	45	248.600	ppb	#REF!	0.70	2000.00	>RL
23	Na	1	45	50310.000	ppb	#REF!	4.19	25000.00	OUTCAL
24	Mg	1	45	8485.000	ppb	#REF!	4.56	25000.00	>RL
27	Al	1	45	97.450	ppb	#REF!	5.78	10000.00	>RL
39	K	1	45	4292.000	ppb	#REF!	4.65	25000.00	>RL
44	Ca	2	45	207900.000	ppb	#REF!	0.67	25000.00	OUTCAL
47	Ti	1	45	1.606	ppb	#REF!	27.45	2000.00	ND
51	V	1	45	5.312	ppb	#REF!	4.84	2000.00	J
52	Cr	1	45	0.321	ppb	#REF!	6.51	2000.00	ND
55	Mn	1	45	16.320	ppb	#REF!	7.10	2000.00	>RL
56	Fe	1	72	70.140	ppb	#REF!	5.23	10000.00	J
59	Co	1	72	0.166	ppb	#REF!	7.38	2000.00	ND
60	Ni	1	72	0.495	ppb	#REF!	6.05	2000.00	ND
63	Cu	1	72	0.388	ppb	#REF!	2.52	2000.00	ND
66	Zn	1	72	3.483	ppb	#REF!	10.12	2000.00	J
75	As	1	72	2.189	ppb	#REF!	6.41	2000.00	J
78	Se	1	72	59.640	ppb	#REF!	5.05	2000.00	>RL
88	Sr	2	115	502.000	ppb	#REF!	0.90	2000.00	>RL
95	Mo	2	115	19.110	ppb	#REF!	1.64	2000.00	>RL
107	Ag	2	115	0.035	ppb	#REF!	2.99	500.00	ND
111	Cd	2	115	0.041	ppb	#REF!	33.58	2000.00	ND
118	Sn	2	115	-0.118	ppb	#REF!	2.64	2000.00	ND
121	Sb	2	115	55.420	ppb	#REF!	0.66	500.00	>RL
137	Ba	2	115	42.280	ppb	#REF!	0.77	2000.00	>RL
205	Tl	2	209	0.031	ppb	#REF!	7.02	2000.00	ND
208	Pb	2	209	0.746	ppb	#REF!	1.78	2000.00	J

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4350531.00	0.52		4008511.30	108.5	70 - 120	
45	Sc	1	105314.88	5.19	RHigh	100020.03	105.3	70 - 120	
45	Sc	2	5322033.00	1.05		4946391.00	107.6	70 - 120	
72	Ge	1	62766.02	4.43		61823.22	101.5	70 - 120	
115	In	2	5837693.00	0.70		5661857.00	103.1	70 - 120	
209	Bi	2	4452217.50	1.59		4553307.50	97.8	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\138SMPL.D\138SMPL.D#

Date Acquired:	Jan 29 2014 11:45 pm	Sample Name:	**1401180-20A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	41430.000	ppb	#REF!	0.19	2000.00	OUTCAL
9	Be	2	45	0.013	ppb	#REF!	22.86	2000.00	ND
11	B	2	45	251.200	ppb	#REF!	2.42	2000.00	>RL
23	Na	1	45	36690.000	ppb	#REF!	4.45	25000.00	OUTCAL
24	Mg	1	45	10630.000	ppb	#REF!	4.60	25000.00	>RL
27	Al	1	45	12.530	ppb	#REF!	12.83	10000.00	J
39	K	1	45	3934.000	ppb	#REF!	3.06	25000.00	>RL
44	Ca	2	45	187600.000	ppb	#REF!	1.39	25000.00	OUTCAL
47	Ti	1	45	0.678	ppb	#REF!	90.89	2000.00	ND
51	V	1	45	4.494	ppb	#REF!	4.54	2000.00	J
52	Cr	1	45	0.056	ppb	#REF!	17.33	2000.00	ND
55	Mn	1	45	4.797	ppb	#REF!	3.95	2000.00	J
56	Fe	1	72	12.620	ppb	#REF!	3.55	10000.00	ND
59	Co	1	72	0.323	ppb	#REF!	3.44	2000.00	ND
60	Ni	1	72	1.800	ppb	#REF!	8.37	2000.00	ND
63	Cu	1	72	0.311	ppb	#REF!	3.48	2000.00	ND
66	Zn	1	72	4.075	ppb	#REF!	3.79	2000.00	J
75	As	1	72	4.716	ppb	#REF!	5.22	2000.00	J
78	Se	1	72	32.690	ppb	#REF!	5.25	2000.00	>RL
88	Sr	2	115	948.800	ppb	#REF!	0.89	2000.00	>RL
95	Mo	2	115	11.170	ppb	#REF!	1.24	2000.00	>RL
107	Ag	2	115	0.036	ppb	#REF!	22.56	500.00	ND
111	Cd	2	115	0.079	ppb	#REF!	4.32	2000.00	ND
118	Sn	2	115	-0.152	ppb	#REF!	20.08	2000.00	ND
121	Sb	2	115	25.610	ppb	#REF!	0.73	500.00	>RL
137	Ba	2	115	39.230	ppb	#REF!	1.28	2000.00	>RL
205	Tl	2	209	0.048	ppb	#REF!	0.52	2000.00	ND
208	Pb	2	209	0.051	ppb	#REF!	3.77	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4327409.00	1.37	4008511.30	108.0	70 - 120	
45	Sc	1	110279.56	4.29	100020.03	110.3	70 - 120	
45	Sc	2	5452964.50	0.77	4946391.00	110.2	70 - 120	
72	Ge	1	66006.52	3.69	61823.22	106.8	70 - 120	
115	In	2	5934289.50	1.47	5661857.00	104.8	70 - 120	
209	Bi	2	4579882.50	1.47	4553307.50	100.6	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\139SMPL.D\139SMPL.D#

Date Acquired:	Jan 29 2014 11:52 pm	Sample Name:	**1401180-21A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	24980.000	ppb	#REF!	1.99	2000.00	OUTCAL
9	Be	2	45	0.029	ppb	#REF!	48.88	2000.00	ND
11	B	2	45	190.000	ppb	#REF!	3.29	2000.00	>RL
23	Na	1	45	42480.000	ppb	#REF!	0.74	25000.00	OUTCAL
24	Mg	1	45	10530.000	ppb	#REF!	0.58	25000.00	>RL
27	Al	1	45	62.450	ppb	#REF!	8.43	10000.00	>RL
39	K	1	45	4357.000	ppb	#REF!	0.56	25000.00	>RL
44	Ca	2	45	178100.000	ppb	#REF!	1.99	25000.00	OUTCAL
47	Ti	1	45	1.488	ppb	#REF!	15.75	2000.00	ND
51	V	1	45	7.425	ppb	#REF!	1.08	2000.00	J
52	Cr	1	45	0.314	ppb	#REF!	1.79	2000.00	ND
55	Mn	1	45	5.921	ppb	#REF!	0.90	2000.00	J
56	Fe	1	72	64.040	ppb	#REF!	1.00	10000.00	J
59	Co	1	72	0.157	ppb	#REF!	7.05	2000.00	ND
60	Ni	1	72	1.417	ppb	#REF!	1.51	2000.00	ND
63	Cu	1	72	0.824	ppb	#REF!	2.25	2000.00	ND
66	Zn	1	72	6.157	ppb	#REF!	3.76	2000.00	>RL
75	As	1	72	125.100	ppb	#REF!	0.99	2000.00	>RL
78	Se	1	72	56.800	ppb	#REF!	3.79	2000.00	>RL
88	Sr	2	115	881.000	ppb	#REF!	2.80	2000.00	>RL
95	Mo	2	115	23.610	ppb	#REF!	4.13	2000.00	>RL
107	Ag	2	115	0.034	ppb	#REF!	27.97	500.00	ND
111	Cd	2	115	0.076	ppb	#REF!	48.68	2000.00	ND
118	Sn	2	115	-0.108	ppb	#REF!	18.81	2000.00	ND
121	Sb	2	115	41.170	ppb	#REF!	3.47	500.00	>RL
137	Ba	2	115	29.930	ppb	#REF!	2.41	2000.00	>RL
205	Tl	2	209	0.025	ppb	#REF!	0.44	2000.00	ND
208	Pb	2	209	0.501	ppb	#REF!	5.36	2000.00	J

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4026708.30	1.74	4008511.30	100.5	70 - 120	
45	Sc	1	114169.15	2.09	100020.03	114.1	70 - 120	
45	Sc	2	5120211.00	2.05	4946391.00	103.5	70 - 120	
72	Ge	1	67883.35	1.35	61823.22	109.8	70 - 120	
115	In	2	5543799.50	2.24	5661857.00	97.9	70 - 120	
209	Bi	2	4257873.50	2.28	4553307.50	93.5	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\140SMPL.D\140SMPL.D#

Date Acquired:	Jan 29 2014 11:58 pm	Sample Name:	**1401180-22A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	15140.000	ppb	#REF!	0.23	2000.00	OUTCAL
9	Be	2	45	0.029	ppb	#REF!	20.15	2000.00	ND
11	B	2	45	717.400	ppb	#REF!	0.15	2000.00	>RL
23	Na	1	45	23090.000	ppb	#REF!	1.88	25000.00	>RL
24	Mg	1	45	8188.000	ppb	#REF!	2.74	25000.00	>RL
27	Al	1	45	45.930	ppb	#REF!	1.92	10000.00	>RL
39	K	1	45	18430.000	ppb	#REF!	2.76	25000.00	>RL
44	Ca	2	45	149200.000	ppb	#REF!	0.88	25000.00	OUTCAL
47	Ti	1	45	0.883	ppb	#REF!	40.00	2000.00	ND
51	V	1	45	7.843	ppb	#REF!	2.61	2000.00	J
52	Cr	1	45	0.350	ppb	#REF!	20.51	2000.00	ND
55	Mn	1	45	3.252	ppb	#REF!	5.40	2000.00	J
56	Fe	1	72	30.180	ppb	#REF!	2.06	10000.00	ND
59	Co	1	72	0.105	ppb	#REF!	1.56	2000.00	ND
60	Ni	1	72	0.449	ppb	#REF!	3.05	2000.00	ND
63	Cu	1	72	1.311	ppb	#REF!	1.56	2000.00	ND
66	Zn	1	72	5.165	ppb	#REF!	4.32	2000.00	>RL
75	As	1	72	32.100	ppb	#REF!	4.51	2000.00	>RL
78	Se	1	72	15.300	ppb	#REF!	4.30	2000.00	>RL
88	Sr	2	115	419.600	ppb	#REF!	0.39	2000.00	>RL
95	Mo	2	115	7.831	ppb	#REF!	1.02	2000.00	>RL
107	Ag	2	115	0.026	ppb	#REF!	10.66	500.00	ND
111	Cd	2	115	0.054	ppb	#REF!	25.10	2000.00	ND
118	Sn	2	115	-0.132	ppb	#REF!	8.28	2000.00	ND
121	Sb	2	115	132.000	ppb	#REF!	0.65	500.00	>RL
137	Ba	2	115	106.700	ppb	#REF!	1.26	2000.00	>RL
205	Tl	2	209	0.101	ppb	#REF!	2.51	2000.00	ND
208	Pb	2	209	0.768	ppb	#REF!	0.78	2000.00	J

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4059360.00	0.75	4008511.30	101.3	70 - 120	
45	Sc	1	102713.41	2.11	100020.03	102.7	70 - 120	
45	Sc	2	4952798.50	0.92	4946391.00	100.1	70 - 120	
72	Ge	1	61778.72	1.88	61823.22	99.9	70 - 120	
115	In	2	5370670.00	0.86	5661857.00	94.9	70 - 120	
209	Bi	2	4165961.50	0.49	4553307.50	91.5	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\141SMPL.D\141SMPL.D#

Date Acquired:	Jan 30 2014 12:04 am	Sample Name:	**1401180-23A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	21480.000	ppb	#REF!	0.85	2000.00	OUTCAL
9	Be	2	45	0.010	ppb	#REF!	34.11	2000.00	ND
11	B	2	45	399.100	ppb	#REF!	0.13	2000.00	>RL
23	Na	1	45	30400.000	ppb	#REF!	1.82	25000.00	OUTCAL
24	Mg	1	45	9450.000	ppb	#REF!	3.33	25000.00	>RL
27	Al	1	45	28.660	ppb	#REF!	0.75	10000.00	J
39	K	1	45	9823.000	ppb	#REF!	2.64	25000.00	>RL
44	Ca	2	45	177200.000	ppb	#REF!	0.11	25000.00	OUTCAL
47	Ti	1	45	0.668	ppb	#REF!	100.61	2000.00	ND
51	V	1	45	17.650	ppb	#REF!	2.99	2000.00	>RL
52	Cr	1	45	0.235	ppb	#REF!	4.46	2000.00	ND
55	Mn	1	45	9.117	ppb	#REF!	4.90	2000.00	J
56	Fe	1	72	36.110	ppb	#REF!	2.19	10000.00	ND
59	Co	1	72	0.118	ppb	#REF!	8.31	2000.00	ND
60	Ni	1	72	0.746	ppb	#REF!	3.00	2000.00	ND
63	Cu	1	72	0.294	ppb	#REF!	5.59	2000.00	ND
66	Zn	1	72	2.941	ppb	#REF!	2.30	2000.00	J
75	As	1	72	415.300	ppb	#REF!	2.89	2000.00	>RL
78	Se	1	72	95.880	ppb	#REF!	4.06	2000.00	>RL
88	Sr	2	115	550.300	ppb	#REF!	0.34	2000.00	>RL
95	Mo	2	115	19.610	ppb	#REF!	1.82	2000.00	>RL
107	Ag	2	115	0.028	ppb	#REF!	5.63	500.00	ND
111	Cd	2	115	0.032	ppb	#REF!	60.73	2000.00	ND
118	Sn	2	115	-0.144	ppb	#REF!	8.57	2000.00	ND
121	Sb	2	115	306.100	ppb	#REF!	0.45	500.00	>RL
137	Ba	2	115	53.530	ppb	#REF!	0.61	2000.00	>RL
205	Tl	2	209	0.072	ppb	#REF!	1.53	2000.00	ND
208	Pb	2	209	0.157	ppb	#REF!	5.22	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4068694.00	0.44	4008511.30	101.5	70 - 120	
45	Sc	1	111318.10	2.52	100020.03	111.3	70 - 120	
45	Sc	2	5056143.50	0.69	4946391.00	102.2	70 - 120	
72	Ge	1	67153.18	2.20	61823.22	108.6	70 - 120	
115	In	2	5509526.00	0.83	5661857.00	97.3	70 - 120	
209	Bi	2	4247742.50	0.12	4553307.50	93.3	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\142SMPL.D\142SMPL.D#

Date Acquired:	Jan 30 2014 12:10 am	Sample Name:	**1401180-24A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	15090.000	ppb	#REF!	1.71	2000.00	OUTCAL
9	Be	2	45	0.035	ppb	#REF!	31.77	2000.00	ND
11	B	2	45	577.100	ppb	#REF!	2.50	2000.00	>RL
23	Na	1	45	19640.000	ppb	#REF!	1.52	25000.00	>RL
24	Mg	1	45	7742.000	ppb	#REF!	1.35	25000.00	>RL
27	Al	1	45	22.990	ppb	#REF!	1.84	10000.00	J
39	K	1	45	11740.000	ppb	#REF!	1.08	25000.00	>RL
44	Ca	2	45	145200.000	ppb	#REF!	1.97	25000.00	OUTCAL
47	Ti	1	45	0.242	ppb	#REF!	88.20	2000.00	ND
51	V	1	45	14.610	ppb	#REF!	1.93	2000.00	>RL
52	Cr	1	45	0.219	ppb	#REF!	9.23	2000.00	ND
55	Mn	1	45	2.994	ppb	#REF!	4.36	2000.00	ND
56	Fe	1	72	19.400	ppb	#REF!	0.84	10000.00	ND
59	Co	1	72	0.077	ppb	#REF!	5.97	2000.00	ND
60	Ni	1	72	0.365	ppb	#REF!	6.80	2000.00	ND
63	Cu	1	72	0.323	ppb	#REF!	1.80	2000.00	ND
66	Zn	1	72	2.522	ppb	#REF!	2.46	2000.00	J
75	As	1	72	122.100	ppb	#REF!	1.64	2000.00	>RL
78	Se	1	72	17.260	ppb	#REF!	5.90	2000.00	>RL
88	Sr	2	115	426.500	ppb	#REF!	1.48	2000.00	>RL
95	Mo	2	115	20.410	ppb	#REF!	2.09	2000.00	>RL
107	Ag	2	115	0.019	ppb	#REF!	11.33	500.00	ND
111	Cd	2	115	0.039	ppb	#REF!	58.61	2000.00	ND
118	Sn	2	115	-0.133	ppb	#REF!	12.11	2000.00	ND
121	Sb	2	115	249.600	ppb	#REF!	1.09	500.00	>RL
137	Ba	2	115	64.830	ppb	#REF!	1.31	2000.00	>RL
205	Tl	2	209	0.033	ppb	#REF!	12.42	2000.00	ND
208	Pb	2	209	0.098	ppb	#REF!	5.09	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4050827.00	2.76	4008511.30	101.1	70 - 120	
45	Sc	1	103595.79	0.33	100020.03	103.6	70 - 120	
45	Sc	2	5020496.50	1.70	4946391.00	101.5	70 - 120	
72	Ge	1	62577.01	0.53	61823.22	101.2	70 - 120	
115	In	2	5524199.50	1.50	5661857.00	97.6	70 - 120	
209	Bi	2	4273188.50	1.73	4553307.50	93.8	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\143SMPL.D\143SMPL.D#

Date Acquired:	Jan 30 2014 12:16 am	Sample Name:	**1401180-26A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	20710.000	ppb	#REF!	1.21	2000.00	OUTCAL
9	Be	2	45	0.036	ppb	#REF!	21.03	2000.00	ND
11	B	2	45	390.000	ppb	#REF!	1.69	2000.00	>RL
23	Na	1	45	30360.000	ppb	#REF!	0.56	25000.00	OUTCAL
24	Mg	1	45	9374.000	ppb	#REF!	1.11	25000.00	>RL
27	Al	1	45	28.050	ppb	#REF!	4.49	10000.00	J
39	K	1	45	9750.000	ppb	#REF!	0.95	25000.00	>RL
44	Ca	2	45	174400.000	ppb	#REF!	1.89	25000.00	OUTCAL
47	Ti	1	45	0.334	ppb	#REF!	50.01	2000.00	ND
51	V	1	45	17.480	ppb	#REF!	3.39	2000.00	>RL
52	Cr	1	45	0.233	ppb	#REF!	10.31	2000.00	ND
55	Mn	1	45	10.520	ppb	#REF!	1.31	2000.00	>RL
56	Fe	1	72	36.810	ppb	#REF!	1.68	10000.00	ND
59	Co	1	72	0.120	ppb	#REF!	14.89	2000.00	ND
60	Ni	1	72	0.795	ppb	#REF!	0.25	2000.00	ND
63	Cu	1	72	0.372	ppb	#REF!	1.84	2000.00	ND
66	Zn	1	72	2.403	ppb	#REF!	6.94	2000.00	J
75	As	1	72	409.900	ppb	#REF!	1.50	2000.00	>RL
78	Se	1	72	95.120	ppb	#REF!	3.40	2000.00	>RL
88	Sr	2	115	538.300	ppb	#REF!	2.37	2000.00	>RL
95	Mo	2	115	19.200	ppb	#REF!	3.81	2000.00	>RL
107	Ag	2	115	0.020	ppb	#REF!	10.73	500.00	ND
111	Cd	2	115	0.058	ppb	#REF!	17.68	2000.00	ND
118	Sn	2	115	-0.148	ppb	#REF!	9.38	2000.00	ND
121	Sb	2	115	299.800	ppb	#REF!	2.10	500.00	>RL
137	Ba	2	115	52.030	ppb	#REF!	1.53	2000.00	>RL
205	Tl	2	209	0.064	ppb	#REF!	2.92	2000.00	ND
208	Pb	2	209	0.179	ppb	#REF!	7.31	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4073589.50	1.47	4008511.30	101.6	70 - 120	
45	Sc	1	103678.90	1.01	100020.03	103.7	70 - 120	
45	Sc	2	5085237.50	2.01	4946391.00	102.8	70 - 120	
72	Ge	1	62925.95	0.83	61823.22	101.8	70 - 120	
115	In	2	5565861.00	1.89	5661857.00	98.3	70 - 120	
209	Bi	2	4318751.50	2.00	4553307.50	94.8	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\144CCV1.D\144CCV1.D#

Date Acquired:	Jan 30 2014 12:22 am	Sample Name:	**CCV5-140129**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	-946.40	ppb	0.55	200.00	90 -	110	-473.2	Fail
9	Be	2	45	224.40	ppb	0.45	200.00	90 -	110	112.2	Fail
11	B	2	45	215.70	ppb	1.97	200.00	90 -	110	107.9	
23	Na	1	45	5377.00	ppb	2.23	5000.00	90 -	110	107.5	
24	Mg	1	45	5083.00	ppb	2.98	5000.00	90 -	110	101.7	
27	Al	1	45	5255.00	ppb	3.48	5000.00	90 -	110	105.1	
39	K	1	45	5399.00	ppb	2.67	5000.00	90 -	110	108.0	
44	Ca	2	45	5659.00	ppb	2.42	5000.00	90 -	110	113.2	Fail
47	Ti	1	45	204.70	ppb	5.65	200.00	90 -	110	102.4	
51	V	1	45	199.10	ppb	3.22	200.00	90 -	110	99.6	
52	Cr	1	45	201.00	ppb	3.33	200.00	90 -	110	100.5	
55	Mn	1	45	213.20	ppb	3.66	200.00	90 -	110	106.6	
56	Fe	1	72	5334.00	ppb	4.07	5000.00	90 -	110	106.7	
59	Co	1	72	205.00	ppb	3.65	200.00	90 -	110	102.5	
60	Ni	1	72	209.50	ppb	2.88	200.00	90 -	110	104.8	
63	Cu	1	72	205.70	ppb	2.97	200.00	90 -	110	102.9	
66	Zn	1	72	209.10	ppb	3.34	200.00	90 -	110	104.6	
75	As	1	72	213.80	ppb	3.30	200.00	90 -	110	106.9	
78	Se	1	72	217.00	ppb	3.28	200.00	90 -	110	108.5	
88	Sr	2	115	218.90	ppb	1.37	200.00	90 -	110	109.5	
95	Mo	2	115	210.80	ppb	1.04	200.00	90 -	110	105.4	
107	Ag	2	115	203.60	ppb	1.21	200.00	90 -	110	101.8	
111	Cd	2	115	205.50	ppb	1.03	200.00	90 -	110	102.8	
118	Sn	2	115	204.70	ppb	1.61	200.00	90 -	110	102.4	
121	Sb	2	115	200.70	ppb	1.27	200.00	90 -	110	100.4	
137	Ba	2	115	201.70	ppb	1.45	200.00	90 -	110	100.9	
205	Tl	2	209	214.90	ppb	1.67	200.00	90 -	110	107.5	
208	Pb	2	209	210.60	ppb	1.32	200.00	90 -	110	105.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4355106.00	0.38	4008511.30	108.6	70 -	120		
45	Sc	1	107696.28	2.28	100020.03	107.7	70 -	120		
45	Sc	2	5434152.50	1.27	4946391.00	109.9	70 -	120		
72	Ge	1	65373.22	2.02	61823.22	105.7	70 -	120		
115	In	2	6013802.00	1.48	5661857.00	106.2	70 -	120		
209	Bi	2	4829835.50	0.84	4553307.50	106.1	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\150LCVL.D\150LCVL.D#

Date Acquired:	Jan 30 2014 12:58 am	Sample Name:	**LCVL5-140129**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	1197.00	ppb	0.88	5.00	70 -	130	######	Fail
9	Be	2	45	1.19	ppb	3.93	1.00	70 -	130	118.6	
11	B	2	45	22.04	ppb	1.19	20.00	70 -	130	110.2	
23	Na	1	45	109.20	ppb	2.23	100.00	70 -	130	109.2	
24	Mg	1	45	106.90	ppb	0.43	100.00	70 -	130	106.9	
27	Al	1	45	110.10	ppb	2.02	100.00	70 -	130	110.1	
39	K	1	45	116.70	ppb	1.95	100.00	70 -	130	116.7	
44	Ca	2	45	119.40	ppb	1.14	100.00	70 -	130	119.4	
47	Ti	1	45	5.10	ppb	10.07	5.00	70 -	130	101.9	
51	V	1	45	1.19	ppb	5.19	1.00	70 -	130	119.0	
52	Cr	1	45	5.27	ppb	1.65	5.00	70 -	130	105.4	
55	Mn	1	45	5.74	ppb	3.76	5.00	70 -	130	114.9	
56	Fe	1	72	112.80	ppb	1.41	100.00	70 -	130	112.8	
59	Co	1	72	5.35	ppb	2.80	5.00	70 -	130	107.0	
60	Ni	1	72	5.65	ppb	3.40	5.00	70 -	130	112.9	
63	Cu	1	72	5.37	ppb	1.30	5.00	70 -	130	107.5	
66	Zn	1	72	5.60	ppb	7.48	5.00	70 -	130	111.9	
75	As	1	72	5.75	ppb	2.45	5.00	70 -	130	115.0	
78	Se	1	72	5.57	ppb	4.46	5.00	70 -	130	111.3	
88	Sr	2	115	5.45	ppb	0.45	5.00	70 -	130	109.1	
95	Mo	2	115	5.00	ppb	1.42	5.00	70 -	130	99.9	
107	Ag	2	115	2.13	ppb	2.25	2.00	70 -	130	106.7	
111	Cd	2	115	1.17	ppb	3.94	1.00	70 -	130	117.3	
118	Sn	2	115	5.23	ppb	1.17	5.00	70 -	130	104.7	
121	Sb	2	115	2.27	ppb	1.50	2.00	70 -	130	113.3	
137	Ba	2	115	5.29	ppb	1.99	5.00	70 -	130	105.8	
205	Tl	2	209	1.09	ppb	2.97	1.00	70 -	130	108.8	
208	Pb	2	209	1.12	ppb	0.94	1.00	70 -	130	112.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4618457.00	0.41	4008511.30	115.2	70 -	120		
45	Sc	1	114204.82	1.94	100020.03	114.2	70 -	120		
45	Sc	2	5486014.00	0.68	4946391.00	110.9	70 -	120		
72	Ge	1	69546.92	1.04	61823.22	112.5	70 -	120		
115	In	2	6141140.50	0.45	5661857.00	108.5	70 -	120		
209	Bi	2	4923861.00	1.39	4553307.50	108.1	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14A29j01.B\152_CCB.D\152_CCB.D#

Date Acquired:	Jan 30 2014 01:10 am	Sample Name:	**CCB5-140129**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 29 2014 01:07 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	1834.000	ppb	0.52	2.00	2.00	Failsoil
9	Be	2	45	0.009	ppb	16.34	0.10	0.30	
11	B	2	45	-0.301	ppb	2.59	10.00	10.00	
23	Na	1	45	0.190	ppb	5.32	50.00	#####	
24	Mg	1	45	-1.837	ppb	9.95	50.00	#####	
27	Al	1	45	-0.212	ppb	31.36	50.00	10.00	
39	K	1	45	8.444	ppb	8.36	50.00	#####	
44	Ca	2	45	4.188	ppb	5.26	50.00	#####	
47	Ti	1	45	-0.032	ppb	0.00	4.00	3.00	
51	V	1	45	0.133	ppb	10.11	4.00	3.00	
52	Cr	1	45	0.021	ppb	14.69	2.00	2.00	
55	Mn	1	45	0.018	ppb	30.31	2.00	3.00	
56	Fe	1	72	-0.125	ppb	19.55	50.00	50.00	
59	Co	1	72	0.012	ppb	29.74	2.00	3.00	
60	Ni	1	72	0.004	ppb	11.46	2.00	3.00	
63	Cu	1	72	-0.123	ppb	13.62	2.00	2.00	
66	Zn	1	72	-0.242	ppb	10.20	4.00	2.00	
75	As	1	72	0.049	ppb	5.90	2.00	2.00	
78	Se	1	72	-0.169	ppb	26.45	0.60	2.00	
88	Sr	2	115	0.027	ppb	10.85	4.00	3.00	
95	Mo	2	115	-0.241	ppb	21.49	2.00	2.00	
107	Ag	2	115	0.011	ppb	11.61	0.40	1.00	
111	Cd	2	115	0.028	ppb	13.49	0.40	0.30	
118	Sn	2	115	-0.100	ppb	11.59	4.00	3.00	
121	Sb	2	115	0.112	ppb	12.40	2.00	0.80	
137	Ba	2	115	0.017	ppb	14.25	2.00	3.00	
205	Tl	2	209	0.014	ppb	8.56	2.00	0.50	
208	Pb	2	209	0.004	ppb	5.88	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4371612.50	0.61	4008511.30	109.1	70 - 120	
45	Sc	1	106686.93	1.42	100020.03	106.7	70 - 120	
45	Sc	2	5131598.50	0.37	4946391.00	103.7	70 - 120	
72	Ge	1	65037.97	0.55	61823.22	105.2	70 - 120	
115	In	2	5706338.50	0.16	5661857.00	100.8	70 - 120	
209	Bi	2	4585702.00	0.25	4553307.50	100.7	70 - 120	

ICP-MS3_140130A
For

DHL Work Order
1401180

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS3_140130A SOP: Metals-ICP-MS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			x
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			x
P/A Factor	Before ICAL	Increasing trend	X			
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			x
ICSAB (N/A for Method 200.8)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLS and ICSA/ICSAB is N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			x
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%	X			
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%			X	
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%		X		
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)	X			
Dilution Test (SD) - RPD	Every Batch	10	X			
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)		X		

Lab Data Review Check List

EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			x
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> 5% of highest standard	X			
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality			X	x
2. Are all corrective actions included?				x	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

TECHNICAL DIRECTOR / QA MANAGER APPROVAL
SIGNATURE AND DATE STAMP:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> MDL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag data / Case narrative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

See notes in Run Log

Analyst: [signature] Date of Completion: 1/31/2014

Second Level Review: [signature] Reviewer Date Stamp:

REVIEWED
By Evelyn Ferrero at 10:14:18 AM, 1/31/2014

DHL Analytical, Inc.

Run ID: ICP-MS3_140130A **Run No.:** 70941

Analytical Run Date: 1/30/2014 **InstrumentID:** ICP-MS3

Analyst: Sara Wieland

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TW	CAL	R70941	1/30/2014 10:10:00 AM		
1/20 ppb STD.	1	ICPMS_TW	CAL	R70941	1/30/2014 10:16:00 AM		
10/200 ppb STD.	1	ICPMS_TW	CAL	R70941	1/30/2014 10:23:00 AM		
50/1000 ppb STD.	1	ICPMS_TW	CAL	R70941	1/30/2014 10:29:00 AM		
100/2000 ppb STD.	1	ICPMS_TW	CAL	R70941	1/30/2014 10:35:00 AM		
250/5000 ppb STD.	1	ICPMS_TW	CAL	R70941	1/30/2014 10:41:00 AM		
500/10000 ppb STD.	1	ICPMS_TW	CAL	R70941	1/30/2014 10:47:00 AM		
2000/25000 ppb STD.	1	ICPMS_TW	CAL	R70941	1/30/2014 10:52:00 AM		
ICSA-140130	1	ICPMS_TW	ICSA	R70941	1/30/2014 11:10:00 AM		
ICSAB-140130	1	ICPMS_TW	ICSB	R70941	1/30/2014 11:16:00 AM		
ICV1-140130	1	6020A_W	ICV	R70941	1/30/2014 11:34:00 AM		
ILCVL-140130	1	6020A_W	LCVL	R70941	1/30/2014 11:52:00 AM		
ICB1-140130	1	6020A_W	ICB	R70941	1/30/2014 12:05:00 PM		
1401180-05A	5	6020A_W	SAMP	61543	1/30/2014 12:11:00 PM		
1401180-06A	5	6020A_W	SAMP	61543	1/30/2014 12:17:00 PM		
1401180-07A	5	6020A_W	SAMP	61543	1/30/2014 12:23:00 PM		
CCV1-140130	1	6020A_W	CCV	R70941	1/30/2014 1:29:00 PM		
LCVL1-140130	1	6020A_W	LCVL	R70941	1/30/2014 1:59:00 PM		
CCB1-140130	1	6020A_W	CCB	R70941	1/30/2014 2:13:00 PM		
MB-61584	5	6020A_S	MBLK	61584	1/30/2014 4:30:00 PM		
LCS-61584	5	6020A_S	LCS	61584	1/30/2014 4:36:00 PM		
LCSD-61584	5	6020A_S	LCSD	61584	1/30/2014 4:42:00 PM		
1401227-01A	5	6020A_S	SAMP	61584	1/30/2014 4:55:00 PM		
1401227-01A SD	25	6020A_S	SD	61584	1/30/2014 5:00:00 PM		
1401227-02A	5	6020A_S	SAMP	61584	1/30/2014 5:06:00 PM		
1401227-03A	5	6020A_S	SAMP	61584	1/30/2014 5:12:00 PM		
1401227-04A	5	6020A_S	SAMP	61584	1/30/2014 5:18:00 PM		
1401227-01A PDS	5	6020A_S	PDS	61584	1/30/2014 5:24:00 PM		S-flag Pb; SD passes, data accepted.
1401227-01A MS	5	6020A_S	MS	61584	1/30/2014 5:30:00 PM		S-flag Pb
1401227-01A MSD	5	6020A_S	MSD	61584	1/30/2014 5:36:00 PM		S-flag Pb

1401227-01A MS/MSD: No recovery for Pb due to high content in the parent sample.

Std ID	Std Name	Type	Exp. Date
MET-CCV-140109	ICPMS CCV 200/5000 PPB		04/09/2014
MET-H2CAL-1401	ICPMS High Cal2 2000ppb std 8		04/09/2014
MET-HCAL-14010	ICPMS High Cal 500ppb/10ppm s		04/09/2014
MET-ICV-131108	ICPMS ICV 100 ppb		02/06/2014
MET-IS-140130	INTERNAL STANDARD 1 PPM		04/30/2014
MET-L2CAL-14010	ICPMS Low Cal2 1/20ppb std 2		04/09/2014
MET-LCAL-140109	ICPMS Low Cal 10/200ppb std 3		04/09/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		04/09/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		04/09/2014
MET-MCAL-14010	ICPMS Mid Cal 250/5000ppb std		04/09/2014
MET-PA-130501	ICPMS PA FACTOR SOLUTION		05/01/2014
MET-PDS-140117	250 PPM Naturals+Al+Fe PDS		04/17/2014
MET-PDS-140120-	10 PPM CUSTOM PDS SOLUTI		04/20/2014
MET-PDS-140120-	10 PPM Ag+Sb PDS		04/20/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		04/16/2014

DHL Analytical, Inc.

Run ID: ICP-MS3_140130A **Run No.:** 70941

CCV2-140130	1	6020A_W	CCV	R70941	1/30/2014 5:42:00 PM		
LCVL2-140130	1	6020A_W	LCVL	R70941	1/30/2014 6:18:00 PM		
CCB2-140130	1	6020A_W	CCB	R70941	1/30/2014 6:30:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140109	ICPMS CCV 200/5000 PPB		04/09/2014
MET-H2CAL-1401	ICPMS High Cal2 2000ppb std 8		04/09/2014
MET-HCAL-14010	ICPMS High Cal 500ppb/10ppm s		04/09/2014
MET-ICV-131108	ICPMS ICV 100 ppb		02/06/2014
MET-IS-140130	INTERNAL STANDARD 1 PPM		04/30/2014
MET-L2CAL-14010	ICPMS Low Cal2 1/20ppb std 2		04/09/2014
MET-LCAL-140109	ICPMS Low Cal 10/200ppb std 3		04/09/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		04/09/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		04/09/2014
MET-MCAL-14010	ICPMS Mid Cal 250/5000ppb std		04/09/2014
MET-PA-130501	ICPMS PA FACTOR SOLUTION		05/01/2014
MET-PDS-140117	250 PPM Naturals+Al+Fe PDS		04/17/2014
MET-PDS-140120-	10 PPM CUSTOM PDS SOLUTI		04/20/2014
MET-PDS-140120-	10 PPM Ag+Sb PDS		04/20/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		04/16/2014

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		CALBEG	Start of CALIB						
2	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
3	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
4	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
5	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
6	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		1/20 ppb STD.	CAL ICPMS_TW	Level 2				
7	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		10/200 ppb STD.	CAL ICPMS_TW	Level 3				
8	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		50/1000 ppb STD.	CAL ICPMS_TW	Level 4				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		100/2000 ppb STD.	CAL ICPMS_TW	Level 5				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		250/5000 ppb STD.	CAL ICPMS_TW	Level 6				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		500/10000 ppb STD.	CAL ICPMS_TW	Level 7				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		2000/25000 ppb STD.	CAL ICPMS_TW	Level 8				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
15		Keyword		CALEND	End of CALIB						
16		Keyword		ICSBEG	Start of ICS						
17	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-140130	ICSAICPMS_TW	1.000				
18	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-140130	ICSBICPMS_TW	1.000				
19	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
20	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
21		Keyword		ICSEND	End of ICS						
22		Keyword		SMPLBEG	Start of SMPL						
23	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-140130	ICV ICPMS_TW	1.000				
24	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	2101		ICB1-140130	ICB ICPMS_TW	1.000				
25	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		ILCVL-140130	LCVL6020A_W	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
26	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		ILCVL-140130	LCVL6020A_W	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1105		ICB1-140130	ICB ICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2102		1401180-05A	SAMP6020A_W	5.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2103		1401180-06A	SAMP6020A_W	5.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2104		1401180-07A	SAMP6020A_W	5.000				
31	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
32	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	2201		MB-61558	MBLKICPMS_TSDOD	5.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2202		LCS-61558	LCS ICPMS_TSDOD	5.000				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2203		LCSD-61558	LCSDICPMS_TSDOD	5.000				
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
36	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2204		1401186-01D	SAMPICPMS_TSDOD	5.000				
37	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2205		1401186-01D SD	SD ICPMS_TSDOD	25.00				
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2206		1401186-01D PDS	PDS ICPMS_TSDOD	5.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2207		1401186-01D MS	MS ICPMS_TSDOD	5.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2208		1401186-01D MSD	MSD ICPMS_TSDOD	5.000				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-140130	CCV ICPMS_TW	1.000				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	2112		CCV1-140130	CCV ICPMS_TW	1.000				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB1-140130	CCB ICPMS_TW	1.000				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB1-140130	CCB ICPMS_TW	1.000				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL1-140130	LCVL6020A_W	1.000				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL1-140130	LCVL6020A_W	1.000				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB1-140130	CCB ICPMS_TW	1.000				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-140130	CCB ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
49	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	2301		MB-61584	MBLK6020A_S	5.000				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2302		LCS-61584	LCS 6020A_S	5.000				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2303		LCSD-61584	LCSD6020A_S	5.000				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2304		1401227-01A	SAMP6020A_S	5.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2305		1401227-01A SD	SD 6020A_S	25.00				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2306		1401227-02A	SAMP6020A_S	5.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2307		1401227-03A	SAMP6020A_S	5.000				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2308		1401227-04A	SAMP6020A_S	5.000				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2309		1401227-01A PDS	PDS 6020A_S	5.000				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2310		1401227-01A MS	MS 6020A_S	5.000				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2311		1401227-01A MSD	MSD 6020A_S	5.000				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-140130	CCV ICPMS_TW	1.000				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	2112		CCV2-140130	CCV ICPMS_TW	1.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1306		CCV2-140130	CCV ICPMS_TW	1.000				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB2-140130	CCB ICPMS_TW	1.000				
65	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB2-140130	CCB ICPMS_TW	1.000				
66	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL2-140130	LCVL6020A_W	1.000				
67	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL2-140130	LCVL6020A_W	1.000				
68	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB2-140130	CCB ICPMS_TW	1.000				
69	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-140130	CCB ICPMS_TW	1.000				
70	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2401		MB-61574	MBLK200.8	1.000				
71	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2402		FILTER BLANK-61574	MBLK200.8	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
72	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2403		LCS-61574	LCS 200.8	1.000				
73	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2404		LCSD-61574	LCSD200.8	1.000				
74	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
75	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2405		1401200-03A	SAMP200.8	1.000				
76	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2406		1401200-03A SD	SD 200.8	5.000				
77	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2407		1401200-01A	SAMP200.8	1.000				
78	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2408		1401200-02A	SAMP200.8	1.000				
79	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2409		1401200-04A	SAMP200.8	1.000				
80	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2410		1401200-05A	SAMP200.8	1.000				
81	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2411		1401200-06A	SAMP200.8	1.000				
82	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2412		1401200-07A	SAMP200.8	1.000				
83	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2501		1401200-08A	SAMP200.8	1.000				
84	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2502		1401200-09A	SAMP200.8	1.000				
85	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2503		1401200-10A	SAMP200.8	1.000				
86	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2504		1401200-03A PDS	PDS 200.8	1.000				
87	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2505		1401200-03A MS	MS 200.8	1.000				
88	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2506		1401200-03A MSD	MSD 200.8	1.000				
89	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-140130	CCV ICPMS_TW	1.000				
90	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	2112		CCV3-140130	CCV ICPMS_TW	1.000				
91	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1306		CCV3-140130	CCV ICPMS_TW	1.000				
92	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB3-140130	CCB ICPMS_TW	1.000				
93	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB3-140130	CCB ICPMS_TW	1.000				
94	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL3-140130	LCVL6020A_W	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
95	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL3-140130	LCVL6020A_W	1.000				
96	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB3-140130	CCB ICPMS_TW	1.000				
97	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-140130	CCB ICPMS_TW	1.000				
98	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2507		1401206-01A	SAMP200.8	1.000				
99	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2508		1401206-01C	SAMP200.8	1.000				
100	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2509		1401206-02A	SAMP200.8	1.000				
101	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-140130	CCV ICPMS_TW	1.000				
102	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	2112		CCV4-140130	CCV ICPMS_TW	1.000				
103	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1306		CCV4-140130	CCV ICPMS_TW	1.000				
104	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB4-140130	CCB ICPMS_TW	1.000				
105	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB4-140130	CCB ICPMS_TW	1.000				
106	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL4-140130	LCVL6020A_W	1.000				
107	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL4-140130	LCVL6020A_W	1.000				
108	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB4-140130	CCB ICPMS_TW	1.000				
109	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB4-140130	CCB ICPMS_TW	1.000				
110		Keyword		StandBy							
111		Keyword		SMPLEND	End of SMPL						
112		Keyword		End	End of Sequence						
113		Keyword		CCVBEG	Start of CCV						
114		Keyword		CCVEND	End of CCV						
115		Keyword		BLKBEG	Start of BLANK						
116		Keyword		BLKEND	End of BLANK						
117		Keyword		ERRBEG	Start of ERRTERM						
118		Keyword		ERREND	End of ERRTERM						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **1/28/2014 12:07:08 PM**
Digestion: **Start: 1/28/2014 1:05:00 PM / Stop: 1/28/2014 5:20:00 PM**
Prep End Date: **1/28/2014 5:25:12 PM**

Prep Batch **61543** Prep Code: **3005A** Technician: **James McNeely**

Prep Factor Units: **mL/mL**

Equipment List
Thermometer #69
Hot Block #2

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1401171-02B	Aqueous		50	50	1.000	1 of 1
1401171-03B	Aqueous		50	50	1.000	1 of 1
1401171-04B	Aqueous		50	50	1.000	1 of 1
1401171-05B	Aqueous		50	50	1.000	1 of 1
1401171-06B	Aqueous		50	50	1.000	1 of 1
1401171-07B	Aqueous		50	50	1.000	1 of 1
1401171-08B	Aqueous		50	50	1.000	1 of 1
1401171-08B MS	Aqueous		50	50	1.000	of
1401171-08B MSD	Aqueous		50	50	1.000	of
1401171-08B PDS	Aqueous		50	50	1.000	of
1401171-08B SD	Aqueous		50	50	1.000	of
1401171-10B	Aqueous		50	50	1.000	1 of 1
1401180-01A	Aqueous		50	50	1.000	1 of 1
1401180-02A	Aqueous		50	50	1.000	1 of 1
1401180-03A	Aqueous		50	50	1.000	1 of 1
1401180-05A	Aqueous		50	50	1.000	1 of 1
1401180-06A	Aqueous		50	50	1.000	1 of 1
1401180-07A	Aqueous		50	50	1.000	1 of 1
1401180-08A	Equip Blank		50	50	1.000	1 of 1
1401180-09A	Aqueous		50	50	1.000	1 of 1
1401180-10A	Aqueous		50	50	1.000	1 of 1
LCS-61543	Aqueous		50	50	1.000	of
LCSD-61543	Aqueous		50	50	1.000	of
MB-61543	Aqueous		50	50	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
7179	pH paper 0-3	4	paper	05/14/2023
7571	Nitric Acid (Trace Metal Grade)	1	ml	06/06/2015
7646	Digestion Vessels	69	ml	06/21/2014
7683	HCL (Trace Grade)	1	ml	08/09/2016

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-130710-1	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	08/08/2014
MET-130710-2	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	08/08/2014
MET-SPIKE-140103	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	02/03/2014
MET-SPIKE-140127-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	02/27/2014
MET-SPIKE-140127-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MS	0.2	02/27/2014

REVIEWED
By Angie O'Donnell at 12:02:06 PM, 1/30/2014

Calibration Summary Report

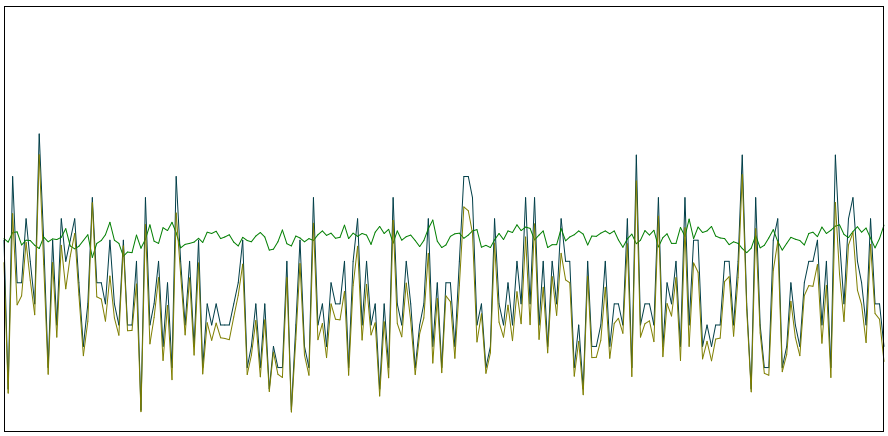
Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3Fe.C
Last Update: Jan 30 2014 10:56 am
Cal Type: Y=aX+[blank]

Standard	Date Acquired	File
BLANK STD 1	Jan 30 2014 10:10 am	c:\icpchem\1\data\14a30j01.b\004calb.d\
1/20 ppb STD.	Jan 30 2014 10:16 am	c:\icpchem\1\data\14a30j01.b\005cals.d\
10/200 ppb STD.	Jan 30 2014 10:23 am	c:\icpchem\1\data\14a30j01.b\006cals.d\
50/1000 ppb STD.	Jan 30 2014 10:29 am	c:\icpchem\1\data\14a30j01.b\007cals.d\
100/2000 ppb STD.	Jan 30 2014 10:35 am	c:\icpchem\1\data\14a30j01.b\008cals.d\
250/5000 ppb STD.	Jan 30 2014 10:41 am	c:\icpchem\1\data\14a30j01.b\009cals.d\

Element Name	Corr Coef	Coef A	Coef B	Lvl 2	Lvl 6	Lvl 7	L7 %R	Lvl 8	L8 %R
Li	-0.7075	-7.15E-005	11.88	1057.00	160	1217		1892	
Be	0.9999	0.06971	0.00329	1.12	277	520	104%	1,991	100%
B	1.0000	0.06413	0.2006	1.07	259	515	103%	1,995	100%
Na	0.9999	0.2562	6.356	28.00	5,159	10,310	103%	24,840	99%
Mg	1.0000	0.1254	0.5851	23.39	5,065	9,923	99%	25,020	100%
Al	1.0000	0.03972	0.224	21.48	5,049	9,974	100%	--------	######
K	1.0000	0.07108	4.912	21.89	5,029	9,952	100%	25,020	100%
Ca	0.9999	0.008279	0.2077	24.43	5,183	10,240	102%	24,870	99%
Ti	1.0000	0.02713	0.002542	0.96	250	496	99%	2,001	100%
V	1.0000	1.05	0.2111	1.07	247	484	97%	2,005	100%
Cr	1.0000	1.361	0.1529	1.02	249	488	98%	2,003	100%
Mn	1.0000	0.6231	0.07387	1.04	256	501	100%	1,999	100%
Fe	0.9999	1.799	7.319	22.07	5,081	9,942	99%	--------	######
Co	1.0000	4.018	0.2047	1.05	250	496	99%	2,001	100%
Ni	1.0000	1.101	0.1155	1.09	257	508	102%	1,997	100%
Cu	1.0000	3.141	1.386	1.16	253	497	99%	2,000	100%
Zn	1.0000	0.3291	0.2683	1.11	263	507	101%	1,996	100%
As	1.0000	0.1797	0.02929	1.07	253	498	100%	2,000	100%
Se	1.0000	0.01201	0.009145	1.03	255	500	100%	1,999	100%
Sr	1.0000	0.2965	0.05291	1.12	260	513	103%	1,995	100%
Mo	1.0000	0.05312	0.00735	1.00	248	501	100%	--------	######
Ag	1.0000	0.1408	0.003064	1.05	247	502	100%	--------	######
Cd	1.0000	0.02768	0.001289	0.99	248	491	98%	2,002	100%
Sn	1.0000	0.08313	0.01592	0.99	249	516	103%	1,996	100%
Sb	0.9999	0.09577	0.007084	0.99	245	503	101%	--------	######
Ba	1.0000	0.04098	0.00287	1.04	247	489	98%	2,003	100%
Tl	1.0000	0.3048	0.01607	1.02	258	506	101%	1,998	100%
Pb	1.0000	0.4177	0.0363	1.03	254	507	101%	1,998	100%

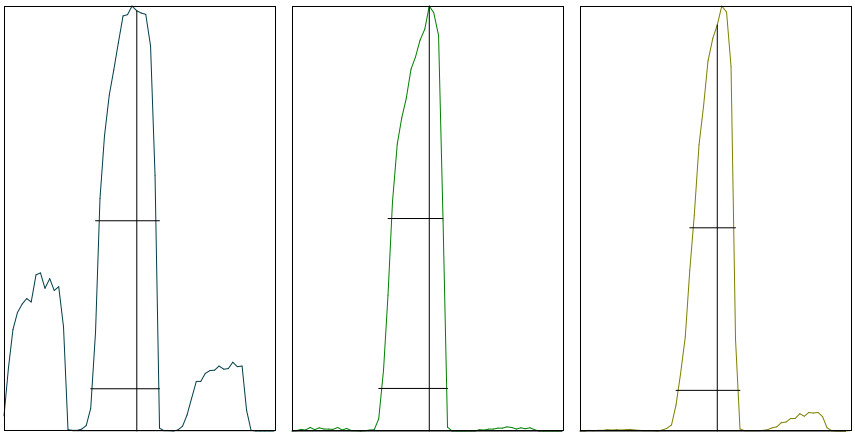
Tune Report

Tune File : He.U
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.2000 sec	
n:	200	
Oxide:	156/140	0.265%
Doubly Charged:	70/140	3.443%

m/z	Range	Count	Mean	RSD%	Background
51	20	4.0	6.5	41.12	0.10
59	5,000	2426.0	2280.8	3.67	0.20
51/59	1	0.165%	0.286%	41.52	



m/z:	59	89	205
Height:	2,316	1,306	5,745
Axis:	59.00	89.05	205.05
W-50%:	0.70	0.60	0.50
W-10%:	0.7500	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.5600 sec

Y axis : Linear

Generated : Jan 30, 2014 09:33:41
Printed : Jan 30, 2014 09:33:43

Tune Report

Tune File : He.U
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1550	W	Extract 1	:	0	V	AMU Gain	:	121	
RF Matching	:	1.7	V	Extract 2	:	-125	V	AMU Offset	:	121	
Smpl Depth	:	10	mm	Omega Bias-ce	:	-22	V	Axis Gain	:	0.9993	
Torch-H	:	0.2	mm	Omega Lens-ce	:	2	V	Axis Offset	:	-0.06	
Torch-V	:	1.2	mm	Cell Entrance	:	-40	V	QP Bias	:	-16	V
Carrier Gas	:	1.2	L/min	QP Focus	:	-9	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	200	V	Pulse HV	:	1020	V
S/C Temp	:	2	degC	OctP Bias	:	-18	V				

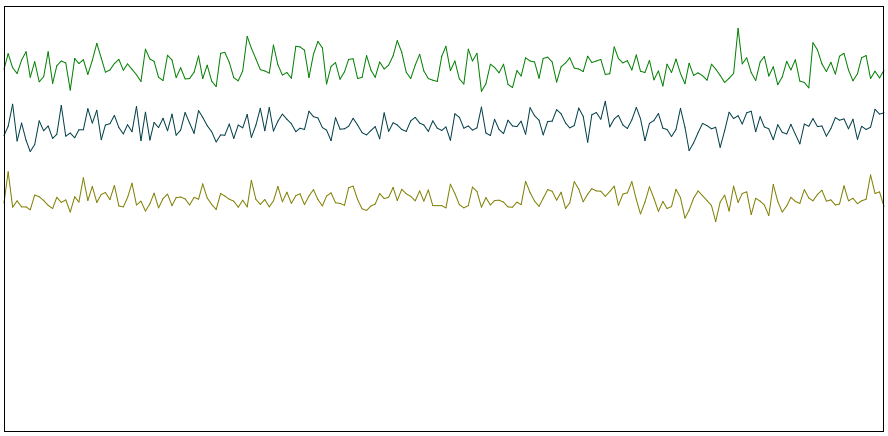
===Reaction Cell===

Reaction Mode	:	ON									
H2 Gas	:	0	mL/min	He Gas	:	4.3	mL/min	Optional Gas	:	---	%

Generated : Jan 30, 2014 09:33:41
Printed : Jan 30, 2014 09:33:45

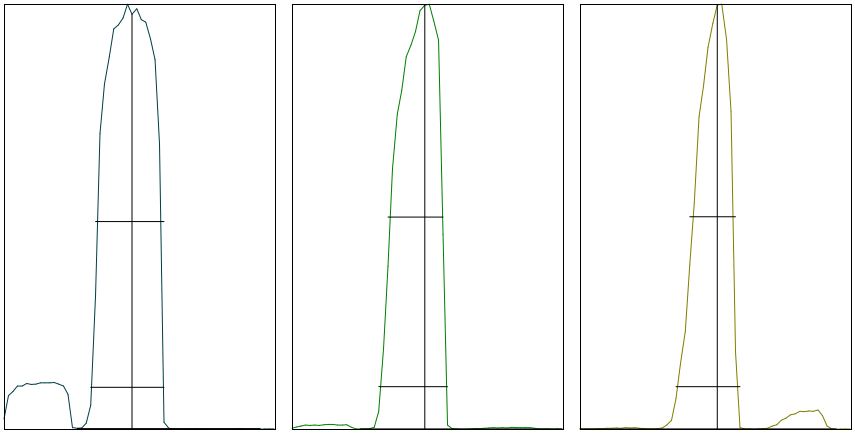
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.8200 sec	
n:	200	
Oxide:	156/140	0.980%
Doubly Charged:	70/140	4.520%

m/z	Range	Count	Mean	RSD%	Background
7	20,000	14992.0	14401.7	3.16	3.70
89	20,000	16994.0	17150.5	3.16	2.60
205	20,000	10587.0	10943.5	3.52	6.00
156/140	2	0.884%	0.999%	10.16	
70/140	5	4.718%	4.399%	5.49	
23	50,000	44320.0	42328.9	3.61	3.10
80	1,000,000	547251.0	550782.7	0.59	3.30



m/z:	7	89	205
Height:	14,392	17,331	11,626
Axis:	6.95	89.00	205.05
W-50%:	0.75	0.60	0.50
W-10%:	0.800	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.7600 sec

Y axis : Linear

Generated : Jan 30, 2014 09:29:01
Printed : Jan 30, 2014 09:29:04

Tune Report

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1550	W	Extract 1	:	0	V	AMU Gain	:	121	
RF Matching	:	1.7	V	Extract 2	:	-125	V	AMU Offset	:	121	
Smpl Depth	:	10	mm	Omega Bias-ce	:	-22	V	Axis Gain	:	0.9993	
Torch-H	:	0.2	mm	Omega Lens-ce	:	2	V	Axis Offset	:	-0.06	
Torch-V	:	1.2	mm	Cell Entrance	:	-40	V	QP Bias	:	-4	V
Carrier Gas	:	1.2	L/min	QP Focus	:	2	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	200	V	Pulse HV	:	1020	V
S/C Temp	:	2	degC	OctP Bias	:	-7	V				

===Reaction Cell===

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

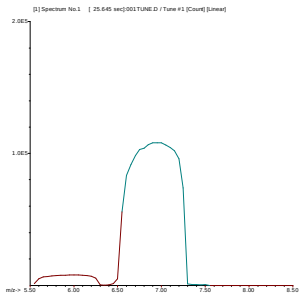
Generated : Jan 30, 2014 09:29:01
Printed : Jan 30, 2014 09:29:06

6020 QC Tune Report

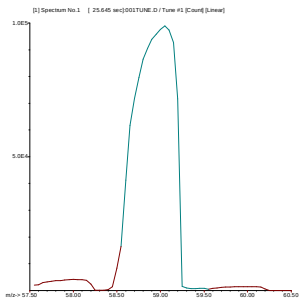
Data File: C:\ICPCHEM\1\DATA\14A30j00.B\001TUNE.D
Date Acquired: Jan 30 2014 09:42 am
Acq. Method: TN6020.M
Operator: SW
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

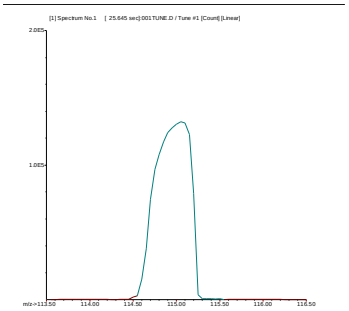
Element	Actual	Required	Flag
7 Li	2.31	5.00	
59 Co	3.48	5.00	
115 In	2.52	5.00	
205 Tl	2.01	5.00	



7 Li
Mass Calib.
Actual: 6.95
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.70
Required: 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.00
Required: 58.90 - 59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:



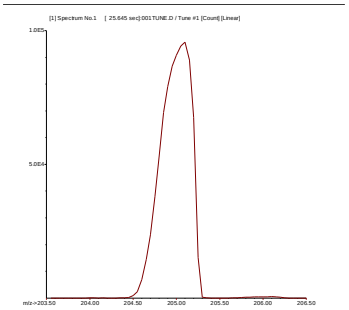
115 In

Mass Calib.

Actual:	115.00	
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:	

P/A Factor Tuning Report

Acquired:Jan 30 2014 09:38 am

Mass[amu]	Element	P/A Factor
6	Li	0.068617
23	Na	0.083207
24	Mg	0.087344
27	Al	0.090230
39	K	0.089924
44	Ca	Sensitivity too low
45	Sc	0.091026
47	Ti	Sensitivity too low
51	V	0.093338
52	Cr	0.096075
55	Mn	0.097718
59	Co	0.101159
60	Ni	0.103055
63	Cu	0.105167
66	Zn	0.104494
72	Ge	0.103303
75	As	0.102527
78	Se	Sensitivity too low
88	Sr	0.103638
95	Mo	0.102139
106	(Cd)	0.108547
107	Ag	Sensitivity too low
108	(Cd)	0.108721
111	Cd	0.109822
115	In	0.109746
118	Sn	0.109235
121	Sb	0.109116
137	Ba	Sensitivity too low
205	Tl	0.118476
206	(Pb)	0.118162
207	(Pb)	0.118234
208	Pb	0.118458
209	Bi	0.118139
238		0.117976

===Detector Parameters===
Discriminator: 8.0 mV
Analog HV: 1750 V
Pulse HV: 1020 V

Calibration Blank QC Report

Acq. Method: DHL_3Fe.M Sample Name: BLANK STD 1
Operator: SW Instrument: ICPMS3
Last Cal. Update: Jan 30 2014 10:14 am
Date Acquired: Jan 30 2014 10:10 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	4348640.00	A	43130.00	0.99
7	Li	2	45	300975.19	P	2341.00	0.78
9	Be	2	45	83.34	P	23.33	28.00
11	B	2	45	5084.55	P	134.60	2.65
23	Na	1	45	3330.59	P	141.10	4.24
24	Mg	1	45	306.68	P	20.82	6.79
27	Al	1	45	117.34	P	15.38	13.11
39	K	1	45	2572.59	P	60.05	2.33
44	Ca	2	45	5263.56	P	82.39	1.57
45	Sc	1	---	104785.30	P	1275.00	1.22
45	Sc	2	---	5067973.00	A	46560.00	0.92
47	Ti	1	45	1.33	P	1.33	99.97
51	V	1	45	110.67	P	7.42	6.71
51	V	2	---		P		
52	Cr	1	45	80.00	P	19.37	24.21
55	Mn	1	45	38.67	P	5.81	15.03
56	Fe	1	72	2338.93	P	113.30	4.84
59	Co	1	72	65.33	P	10.67	16.33
60	Ni	1	72	36.89	P	6.16	16.70
60	Ni	2	---		P		
63	Cu	1	72	443.13	P	9.65	2.18
63	Cu	2	---		P		
66	Zn	1	72	85.78	P	6.01	7.01
66	Zn	2	---		P		
72	Ge	1	---	63949.56	P	900.10	1.41
72	Ge	2	---		P		
75	As	1	72	9.37	P	0.86	9.21
78	Se	1	72	2.93	P	0.26	8.77
88	Sr	2	###	1494.60	P	120.80	8.08
95	Mo	2	###	207.79	P	18.36	8.84
107	Ag	2	###	86.67	P	29.06	33.53
111	Cd	2	###	36.47	P	10.52	28.84
115	In	2	---	5651742.00	A	52570.00	0.93
118	Sn	2	###	450.03	P	21.86	4.86
121	Sb	2	###	200.01	P	36.06	18.03
137	Ba	2	###	81.11	P	10.18	12.55
205	Tl	2	###	363.36	P	23.33	6.42
208	Pb	2	###	821.16	P	72.45	8.82
209	Bi	2	---	4522098.00	A	44100.00	0.98

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 1/20 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jan 30 2014 10:16 am
Last Cal. Update: Jan 30 2014 10:14 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4376004.00	A	62500.00	1.43	
7	Li	2	45	300253.09	P	1540.00	0.51	Fail
9	Be	2	45	2070.25	P	87.19	4.21	
11	B	2	45	6851.01	P	133.00	1.94	
23	Na	1	45	7169.01	P	183.70	2.56	
24	Mg	1	45	1864.66	P	81.41	4.37	
27	Al	1	45	571.13	P	12.10	2.12	
39	K	1	45	3428.40	P	46.75	1.36	
44	Ca	2	45	10430.36	P	233.70	2.24	
45	Sc	1	---	106036.10	P	1800.00	1.70	
45	Sc	2	---	5088097.00	A	15830.00	0.31	
47	Ti	1	45	15.11	P	4.29	28.36	
51	V	1	45	709.81	P	21.27	3.00	
51	V	2	---		P			
52	Cr	1	45	816.04	P	32.58	3.99	
55	Mn	1	45	382.23	P	17.40	4.55	
56	Fe	1	72	15134.34	P	150.60	1.00	
59	Co	1	72	1417.44	P	22.03	1.55	
60	Ni	1	72	422.24	P	14.99	3.55	
60	Ni	2	---		P			
63	Cu	1	72	1615.69	P	73.05	4.52	
63	Cu	2	---		P			
66	Zn	1	72	204.01	P	23.70	11.62	
66	Zn	2	---		P			
72	Ge	1	---	64379.75	P	741.30	1.15	
72	Ge	2	---		P			
75	As	1	72	71.26	P	1.73	2.43	
78	Se	1	72	6.93	P	0.06	0.93	
88	Sr	2	115	10780.76	P	220.70	2.05	
95	Mo	2	115	1699.08	P	142.60	8.39	
107	Ag	2	115	4206.49	P	38.66	0.92	
111	Cd	2	115	806.80	P	18.15	2.25	
115	In	2	---	5598125.00	A	41140.00	0.73	
118	Sn	2	115	2748.21	P	32.90	1.20	
121	Sb	2	115	2861.58	P	73.75	2.58	
137	Ba	2	115	1267.90	P	35.02	2.76	
205	Tl	2	209	7373.83	P	108.30	1.47	
208	Pb	2	209	10519.03	P	238.20	2.26	
209	Bi	2	---	4515392.00	A	18900.00	0.42	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4376003.50	1.43	4348639.50	100.6	70 - 120	
45	Sc	1	106036.07	1.70	104785.27	101.2	70 - 120	
45	Sc	2	5088097.00	0.31	5067973.50	100.4	70 - 120	
72	Ge	1	64379.75	1.15	63949.56	100.7	70 - 120	
115	In	2	5598125.50	0.73	5651741.50	99.1	70 - 120	
209	Bi	2	4515392.00	0.42	4522098.00	99.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 10/200 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jan 30 2014 10:23 am
Last Cal. Update: Jan 30 2014 10:20 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4279047.00	A	53370.00	1.25	
7	Li	2	45	297230.91	P	1291.00	0.43	Fail
9	Be	2	45	20390.44	P	127.90	0.63	Fail
11	B	2	45	22701.22	P	429.70	1.89	Fail
23	Na	1	45	33042.31	P	539.70	1.63	Fail
24	Mg	1	45	14548.99	P	423.60	2.91	Fail
27	Al	1	45	4522.67	P	201.60	4.46	Fail
39	K	1	45	10675.01	P	197.90	1.85	Fail
44	Ca	2	45	49217.42	P	301.30	0.61	Fail
45	Sc	1	---	106843.10	P	729.70	0.68	
45	Sc	2	---	4999297.00	A	22500.00	0.45	
47	Ti	1	45	169.34	P	12.72	7.51	Fail
51	V	1	45	5926.84	P	90.12	1.52	Fail
51	V	2	---		P			
52	Cr	1	45	7756.31	P	199.50	2.57	Fail
55	Mn	1	45	3617.92	P	102.60	2.84	Fail
56	Fe	1	72	124351.60	P	2963.00	2.38	Fail
59	Co	1	72	13579.17	P	311.60	2.29	Fail
60	Ni	1	72	3875.78	P	38.87	1.00	Fail
60	Ni	2	---		P			
63	Cu	1	72	11205.26	P	437.30	3.90	Fail
63	Cu	2	---		P			
66	Zn	1	72	1236.09	P	31.53	2.55	Fail
66	Zn	2	---		P			
72	Ge	1	---	64241.64	P	888.90	1.38	
72	Ge	2	---		P			
75	As	1	72	620.13	P	18.48	2.98	Fail
78	Se	1	72	45.67	P	2.95	6.45	Fail
88	Sr	2	115	88367.43	P	1250.00	1.41	Fail
95	Mo	2	115	14924.23	P	402.80	2.70	Fail
107	Ag	2	115	40411.41	P	573.30	1.42	Fail
111	Cd	2	115	7998.29	P	105.80	1.32	Fail
115	In	2	---	5556085.00	A	49430.00	0.89	
118	Sn	2	115	24198.73	P	260.50	1.08	Fail
121	Sb	2	115	27187.44	P	494.30	1.82	Fail
137	Ba	2	115	11743.02	P	182.60	1.56	Fail
205	Tl	2	209	69459.65	P	341.70	0.49	Fail
208	Pb	2	209	96890.77	P	519.30	0.54	Fail
209	Bi	2	---	4440725.00	A	40700.00	0.92	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4279047.00	1.25	4348639.50	98.4	70 - 120	
45	Sc	1	106843.07	0.68	104785.27	102.0	70 - 120	
45	Sc	2	4999297.50	0.45	5067973.50	98.6	70 - 120	
72	Ge	1	64241.64	1.38	63949.56	100.5	70 - 120	
115	In	2	5556085.50	0.89	5651741.50	98.3	70 - 120	
209	Bi	2	4440724.50	0.92	4522098.00	98.2	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 50/1000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jan 30 2014 10:29 am
Last Cal. Update: Jan 30 2014 10:26 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4397799.00	A	33430.00	0.76	
7	Li	2	45	303762.91	P	2241.00	0.74	Fail
9	Be	2	45	97690.38	P	978.00	1.00	Fail
11	B	2	45	89418.80	P	331.00	0.37	Fail
23	Na	1	45	146373.80	P	467.50	0.32	Fail
24	Mg	1	45	69167.18	P	1017.00	1.47	Fail
27	Al	1	45	21853.88	P	423.70	1.94	Fail
39	K	1	45	41452.07	P	262.60	0.63	Fail
44	Ca	2	45	214979.00	P	2722.00	1.27	Fail
45	Sc	1	---	110036.90	P	975.90	0.89	
45	Sc	2	---	5116582.00	A	33300.00	0.65	
47	Ti	1	45	758.26	P	61.65	8.13	
51	V	1	45	28445.28	P	380.00	1.34	Fail
51	V	2	---		P			
52	Cr	1	45	37231.66	P	955.90	2.57	Fail
55	Mn	1	45	17542.88	P	305.10	1.74	Fail
56	Fe	1	72	600118.38	P	11360.00	1.89	Fail
59	Co	1	72	66543.69	P	794.10	1.19	
60	Ni	1	72	18933.39	P	423.80	2.24	
60	Ni	2	---		P			
63	Cu	1	72	53306.29	P	512.10	0.96	Fail
63	Cu	2	---		P			
66	Zn	1	72	5728.98	P	57.41	1.00	Fail
66	Zn	2	---		P			
72	Ge	1	---	66451.81	P	647.90	0.97	
72	Ge	2	---		P			
75	As	1	72	3020.97	P	31.08	1.03	Fail
78	Se	1	72	202.82	P	3.78	1.86	Fail
88	Sr	2	115	420211.69	P	6142.00	1.46	Fail
95	Mo	2	115	71921.48	P	1461.00	2.03	Fail
107	Ag	2	115	195039.59	P	1713.00	0.88	Fail
111	Cd	2	115	38457.07	P	691.10	1.80	Fail
115	In	2	---	5677394.00	A	68320.00	1.20	
118	Sn	2	115	114271.60	P	690.70	0.60	Fail
121	Sb	2	115	129520.60	P	1438.00	1.11	Fail
137	Ba	2	115	55736.03	P	841.70	1.51	Fail
205	Tl	2	209	333159.00	P	4898.00	1.47	Fail
208	Pb	2	209	461694.19	P	7148.00	1.55	Fail
209	Bi	2	---	4526987.00	A	54070.00	1.19	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4397799.50	0.76	4348639.50	101.1	70 - 120	
45	Sc	1	110036.95	0.89	104785.27	105.0	70 - 120	
45	Sc	2	5116582.00	0.65	5067973.50	101.0	70 - 120	
72	Ge	1	66451.81	0.97	63949.56	103.9	70 - 120	
115	In	2	5677394.50	1.20	5651741.50	100.5	70 - 120	
209	Bi	2	4526987.00	1.19	4522098.00	100.1	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 100/2000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jan 30 2014 10:35 am
Last Cal. Update: Jan 30 2014 10:32 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4387729.00	A	52270.00	1.19	
7	Li	2	45	304569.09	P	317.20	0.10	Fail
9	Be	2	45	199339.91	P	425.00	0.21	Fail
11	B	2	45	175994.91	P	2497.00	1.42	Fail
23	Na	1	45	290731.69	P	2548.00	0.88	Fail
24	Mg	1	45	139336.09	P	2622.00	1.88	Fail
27	Al	1	45	44175.48	P	1082.00	2.45	Fail
39	K	1	45	80200.64	P	594.10	0.74	Fail
44	Ca	2	45	428712.19	P	2730.00	0.64	Fail
45	Sc	1	---	110396.00	P	1373.00	1.24	
45	Sc	2	---	5094732.00	A	34750.00	0.68	
47	Ti	1	45	1543.68	P	75.11	4.87	
51	V	1	45	56665.18	P	1300.00	2.29	Fail
51	V	2	---		M			
52	Cr	1	45	74568.10	P	2042.00	2.74	
55	Mn	1	45	34781.65	P	990.30	2.85	
56	Fe	1	72	1235755.00	A	33120.00	2.68	
59	Co	1	72	132973.80	P	2833.00	2.13	
60	Ni	1	72	37683.46	P	786.40	2.09	
60	Ni	2	---		P			
63	Cu	1	72	105445.00	P	1893.00	1.80	Fail
63	Cu	2	---		P			
66	Zn	1	72	11405.01	P	110.70	0.97	Fail
66	Zn	2	---		P			
72	Ge	1	---	65789.55	P	632.00	0.96	
72	Ge	2	---		P			
75	As	1	72	6012.51	P	102.50	1.70	
78	Se	1	72	414.60	P	10.91	2.63	Fail
88	Sr	2	115	852665.88	P	5536.00	0.65	Fail
95	Mo	2	115	147735.80	P	786.40	0.53	Fail
107	Ag	2	115	393514.50	P	2584.00	0.66	Fail
111	Cd	2	115	78446.65	P	430.00	0.55	Fail
115	In	2	---	5618012.00	A	40500.00	0.72	
118	Sn	2	115	232267.59	P	3791.00	1.63	Fail
121	Sb	2	115	262200.41	P	2538.00	0.97	Fail
137	Ba	2	115	112879.50	P	1478.00	1.31	Fail
205	Tl	2	209	683441.19	P	3826.00	0.56	Fail
208	Pb	2	209	943127.13	P	10030.00	1.06	Fail
209	Bi	2	---	4515723.00	A	20780.00	0.46	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4387729.50	1.19	4348639.50	100.9	70 - 120	
45	Sc	1	110396.02	1.24	104785.27	105.4	70 - 120	
45	Sc	2	5094732.50	0.68	5067973.50	100.5	70 - 120	
72	Ge	1	65789.56	0.96	63949.56	102.9	70 - 120	
115	In	2	5618012.50	0.72	5651741.50	99.4	70 - 120	
209	Bi	2	4515723.50	0.46	4522098.00	99.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 250/5000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jan 30 2014 10:41 am
Last Cal. Update: Jan 30 2014 10:38 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4358385.00	A	33560.00	0.77	
7	Li	2	45	298027.91	P	1864.00	0.63	Fail
9	Be	2	45	485328.91	P	6746.00	1.39	Fail
11	B	2	45	421314.09	P	4849.00	1.15	Fail
23	Na	1	45	727562.88	P	3680.00	0.51	Fail
24	Mg	1	45	348255.41	P	6092.00	1.75	
27	Al	1	45	110045.10	P	3104.00	2.82	
39	K	1	45	198570.91	P	2420.00	1.22	Fail
44	Ca	2	45	1082829.00	A	10960.00	1.01	Fail
45	Sc	1	---	109597.40	P	831.30	0.76	
45	Sc	2	---	5023034.00	A	12540.00	0.25	
47	Ti	1	45	3720.62	P	100.80	2.71	
51	V	1	45	142221.30	P	2774.00	1.95	
51	V	2	---		A			
52	Cr	1	45	186147.91	P	3710.00	1.99	
55	Mn	1	45	87281.49	P	1859.00	2.13	
56	Fe	1	72	2996794.00	A	75720.00	2.53	
59	Co	1	72	329532.59	P	4075.00	1.24	
60	Ni	1	72	92848.80	P	1447.00	1.56	
60	Ni	2	---		P			
63	Cu	1	72	260328.09	P	3437.00	1.32	
63	Cu	2	---		P			
66	Zn	1	72	28413.93	P	655.80	2.31	
66	Zn	2	---		P			
72	Ge	1	---	65521.24	P	621.30	0.95	
72	Ge	2	---		P			
75	As	1	72	14885.74	P	205.20	1.38	
78	Se	1	72	1005.60	P	15.36	1.53	
88	Sr	2	115	2129995.00	A	29710.00	1.39	Fail
95	Mo	2	115	363803.19	P	5024.00	1.38	Fail
107	Ag	2	115	960093.50	P	12600.00	1.31	Fail
111	Cd	2	115	189550.80	P	2058.00	1.09	Fail
115	In	2	---	5513619.00	A	70890.00	1.29	
118	Sn	2	115	570975.69	P	6170.00	1.08	Fail
121	Sb	2	115	647145.19	P	7912.00	1.22	Fail
137	Ba	2	115	278619.59	P	1619.00	0.58	Fail
205	Tl	2	209	1742515.00	A	9383.00	0.54	Fail
208	Pb	2	209	2354325.00	A	22770.00	0.97	Fail
209	Bi	2	---	4439148.00	A	10090.00	0.23	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4358385.00	0.77	4348639.50	100.2	70 - 120	
45	Sc	1	109597.37	0.76	104785.27	104.6	70 - 120	
45	Sc	2	5023034.50	0.25	5067973.50	99.1	70 - 120	
72	Ge	1	65521.24	0.95	63949.56	102.5	70 - 120	
115	In	2	5513619.00	1.29	5651741.50	97.6	70 - 120	
209	Bi	2	4439148.00	0.23	4522098.00	98.2	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 500/10000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jan 30 2014 10:47 am
Last Cal. Update: Jan 30 2014 10:44 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4312582.00	A	11800.00	0.27	
7	Li	2	45	296515.09	P	1906.00	0.64	Fail
9	Be	2	45	912604.63	A	19240.00	2.11	Fail
11	B	2	45	836303.19	A	19660.00	2.35	Fail
23	Na	1	45	1468970.00	A	12070.00	0.82	Fail
24	Mg	1	45	690566.31	P	5088.00	0.74	
27	Al	1	45	219976.80	P	3848.00	1.75	
39	K	1	45	395224.00	P	3516.00	0.89	Fail
44	Ca	2	45	2137135.00	A	41890.00	1.96	Fail
45	Sc	1	---	110981.50	P	750.60	0.68	
45	Sc	2	---	5030822.00	A	106600.00	2.12	
47	Ti	1	45	7468.58	P	49.58	0.66	
51	V	1	45	281873.31	P	3796.00	1.35	
51	V	2	---		A			
52	Cr	1	45	368657.31	P	5165.00	1.40	
55	Mn	1	45	173380.91	P	2188.00	1.26	
56	Fe	1	72	5864081.00	A	105100.00	1.79	
59	Co	1	72	652617.88	P	7721.00	1.18	
60	Ni	1	72	183230.30	P	2961.00	1.62	
60	Ni	2	---		P			
63	Cu	1	72	512013.91	P	5228.00	1.02	
63	Cu	2	---		A			
66	Zn	1	72	54806.36	P	991.40	1.81	
66	Zn	2	---		P			
72	Ge	1	---	65551.42	P	319.40	0.49	
72	Ge	2	---		P			
75	As	1	72	29327.14	P	397.30	1.35	
78	Se	1	72	1968.68	P	21.13	1.07	
88	Sr	2	115	4188664.00	A	98210.00	2.34	Fail
95	Mo	2	115	733303.69	P	13470.00	1.84	Fail
107	Ag	2	115	1944198.00	A	24230.00	1.25	Fail
111	Cd	2	115	374511.91	P	6887.00	1.84	Fail
115	In	2	---	5505999.00	A	86270.00	1.57	
118	Sn	2	115	1180451.00	A	27570.00	2.34	Fail
121	Sb	2	115	1327059.00	A	23040.00	1.74	Fail
137	Ba	2	115	552163.81	P	10050.00	1.82	Fail
205	Tl	2	209	3421491.00	A	54530.00	1.59	Fail
208	Pb	2	209	4694219.00	A	114500.00	2.44	Fail
209	Bi	2	---	4435628.00	A	61530.00	1.39	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4312581.50	0.27	4348639.50	99.2	70 - 120	
45	Sc	1	110981.51	0.68	104785.27	105.9	70 - 120	
45	Sc	2	5030821.50	2.12	5067973.50	99.3	70 - 120	
72	Ge	1	65551.41	0.49	63949.56	102.5	70 - 120	
115	In	2	5505998.50	1.57	5651741.50	97.4	70 - 120	
209	Bi	2	4435628.00	1.39	4522098.00	98.1	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 2000/25000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jan 30 2014 10:52 am
Last Cal. Update: Jan 30 2014 10:50 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4236446.00	A	35770.00	0.84	
7	Li	2	45	293350.81	P	635.30	0.22	Fail
9	Be	2	45	3467522.00	A	34330.00	0.99	
11	B	2	45	3200995.00	A	19720.00	0.62	Fail
23	Na	1	45	3489263.00	A	45170.00	1.29	
24	Mg	1	45	1718302.00	A	21810.00	1.27	
27	Al	1	45	367.12	P	15.79	4.30	Fail
39	K	1	45	976707.63	A	8058.00	0.83	Fail
44	Ca	2	45	5148883.00	A	40490.00	0.79	Fail
45	Sc	1	---	109559.40	P	429.20	0.39	
45	Sc	2	---	4997030.00	A	65750.00	1.32	
47	Ti	1	45	29740.23	P	583.60	1.96	
51	V	1	45	1152624.00	A	16760.00	1.45	
51	V	2	---		A			
52	Cr	1	45	1493823.00	A	28270.00	1.89	
55	Mn	1	45	682402.13	P	8503.00	1.25	
56	Fe	1	72	169906.09	P	2865.00	1.69	Fail
59	Co	1	72	2598088.00	A	30850.00	1.19	
60	Ni	1	72	710789.63	P	8683.00	1.22	
60	Ni	2	---		A			
63	Cu	1	72	2030992.00	A	8690.00	0.43	
63	Cu	2	---		A			
66	Zn	1	72	212403.30	P	2612.00	1.23	
66	Zn	2	---		A			
72	Ge	1	---	64633.64	P	449.80	0.70	
72	Ge	2	---		P			
75	As	1	72	116135.10	P	1505.00	1.30	
78	Se	1	72	7761.05	P	140.40	1.81	
88	Sr	2	115	16211400.00	A	58150.00	0.36	Fail
95	Mo	2	115	2988394.00	A	31860.00	1.07	Fail
107	Ag	2	115	1812.49	P	192.90	10.64	Fail
111	Cd	2	115	1518666.00	A	9200.00	0.61	
115	In	2	---	5479729.00	A	66590.00	1.22	
118	Sn	2	115	4547166.00	A	51260.00	1.13	Fail
121	Sb	2	115	1595.76	P	298.60	18.71	Fail
137	Ba	2	115	2249188.00	A	15150.00	0.67	
205	Tl	2	209	13199800.00	A	143700.00	1.09	
208	Pb	2	209	18094400.00	A	226800.00	1.25	
209	Bi	2	---	4336004.00	A	30830.00	0.71	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2		4236446.00	0.84	4348639.50	97.4	70 -	120	
45	Sc	1		109559.38	0.39	104785.27	104.6	70 -	120	
45	Sc	2		4997029.50	1.32	5067973.50	98.6	70 -	120	
72	Ge	1		64633.64	0.70	63949.56	101.1	70 -	120	
115	In	2		5479728.50	1.22	5651741.50	97.0	70 -	120	
209	Bi	2		4336003.50	0.71	4522098.00	95.9	70 -	120	

ICSA QC Report

C:\ICPCHEM\1\DATA\14A30j01.B\014ICSA.D\014ICSA.D#

Date Acquired:	Jan 30 2014 11:10 am	Sample Name:	**ICSA-140130**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 30 2014 10:56 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	11320.000	ppb	0.11	8.00	5.00	FailSoil
9	Be	2	45	0.185	ppb	49.66	0.32	0.80	
11	B	2	45	8.257	ppb	1.86	30.00	30.00	
23	Na	1	45	93670.000	ppb	1.38	#######	#######	
24	Mg	1	45	92970.000	ppb	2.42	#######	#######	
27	Al	1	45	98430.000	ppb	2.54	#######	#######	
39	K	1	45	93770.000	ppb	2.54	#######	#######	
44	Ca	2	45	91020.000	ppb	0.47	#######	#######	
47	Ti	1	45	1981.000	ppb	2.47	10.00	10.00	
51	V	1	45	0.175	ppb	9.95	10.00	10.00	
52	Cr	1	45	0.528	ppb	6.97	8.00	5.00	
55	Mn	1	45	2.796	ppb	0.73	8.00	10.00	
56	Fe	1	72	92890.000	ppb	2.85	#######	#######	
59	Co	1	72	1.972	ppb	2.02	8.00	10.00	
60	Ni	1	72	1.750	ppb	4.18	8.00	10.00	
63	Cu	1	72	1.111	ppb	6.22	8.00	10.00	
66	Zn	1	72	0.959	ppb	6.73	10.00	5.00	
75	As	1	72	0.499	ppb	13.25	4.00	5.00	
78	Se	1	72	0.587	ppb	12.92	2.00	5.00	
88	Sr	2	115	0.510	ppb	17.32	10.00	10.00	
95	Mo	2	115	1968.000	ppb	1.13	8.00	5.00	
107	Ag	2	115	0.366	ppb	10.12	0.80	2.00	
111	Cd	2	115	0.639	ppb	32.81	1.20	1.00	
118	Sn	2	115	0.700	ppb	8.11	10.00	10.00	
121	Sb	2	115	1.020	ppb	6.62	4.00	2.50	
137	Ba	2	115	7.400	ppb	2.84	8.00	10.00	
205	Tl	2	209	0.518	ppb	16.58	4.00	1.50	
208	Pb	2	209	0.274	ppb	25.35	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3896232.50	0.41	4348639.50	89.6	70 - 120	
45	Sc	1	110516.05	2.45	104785.27	105.5	70 - 120	
45	Sc	2	4865019.50	0.20	5067973.50	96.0	70 - 120	
72	Ge	1	64140.33	2.36	63949.56	100.3	70 - 120	
115	In	2	5172981.50	0.63	5651741.50	91.5	70 - 120	
209	Bi	2	3964821.50	0.34	4522098.00	87.7	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\14A30j01.B\015ICSB.D\015ICSB.D#

Date Acquired:	Jan 30 2014 11:16 am	Sample Name:	**ICSAB-140130**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 30 2014 10:56 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	15140.00	ppb	1.66	---	80 -		120	
9	Be	2	45	0.13	ppb	22.39	---	80 -		120	
11	B	2	45	5.05	ppb	1.68	---	80 -		120	
23	Na	1	45	91950.00	ppb	0.57	100000.00	80 -		120	
24	Mg	1	45	91130.00	ppb	1.81	100000.00	80 -		120	
27	Al	1	45	96500.00	ppb	1.40	100000.00	80 -		120	
39	K	1	45	93320.00	ppb	0.92	100000.00	80 -		120	
44	Ca	2	45	91360.00	ppb	0.89	100000.00	80 -		120	
47	Ti	1	45	1970.00	ppb	1.76	---	80 -		120	
51	V	1	45	37.95	ppb	1.03	40.00	80 -		120	
52	Cr	1	45	18.75	ppb	0.52	20.00	80 -		120	
55	Mn	1	45	22.06	ppb	1.01	20.00	80 -		120	
56	Fe	1	72	92180.00	ppb	0.82	100000.00	80 -		120	
59	Co	1	72	38.73	ppb	0.69	40.00	80 -		120	
60	Ni	1	72	38.55	ppb	1.50	40.00	80 -		120	
63	Cu	1	72	18.81	ppb	0.62	20.00	80 -		120	
66	Zn	1	72	20.14	ppb	2.72	20.00	80 -		120	
75	As	1	72	19.93	ppb	1.30	20.00	80 -		120	
78	Se	1	72	19.85	ppb	2.09	20.00	80 -		120	
88	Sr	2	115	0.44	ppb	2.75	---	80 -		120	
95	Mo	2	115	1948.00	ppb	1.21	---	80 -		120	
107	Ag	2	115	17.42	ppb	0.99	20.00	80 -		120	
111	Cd	2	115	9.50	ppb	3.21	10.00	80 -		120	
118	Sn	2	115	0.53	ppb	2.43	---	80 -		120	
121	Sb	2	115	0.87	ppb	3.82	---	80 -		120	
137	Ba	2	115	0.37	ppb	16.22	---	80 -		120	
205	Tl	2	209	0.24	ppb	5.68	---	80 -		120	
208	Pb	2	209	0.24	ppb	3.89	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3699868.80	1.62	4348639.50	85.1	70 -		120	
45	Sc	1	106875.50	0.59	104785.27	102.0	70 -		120	
45	Sc	2	4736909.00	1.32	5067973.50	93.5	70 -		120	
72	Ge	1	62273.11	0.53	63949.56	97.4	70 -		120	
115	In	2	5022314.00	2.28	5651741.50	88.9	70 -		120	
209	Bi	2	3893346.30	1.49	4522098.00	86.1	70 -		120	

CCV QC Report

C:\ICPCHEM\1\DATA\14A30j01.B\018ICV.D\018ICV.D#

Date Acquired:	Jan 30 2014 11:34 am	Sample Name:	**ICV1-140130**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 30 2014 10:56 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	16320.00	ppb	1.98	100.00	90 -	110	######	Fail
9	Be	2	45	102.20	ppb	1.88	100.00	90 -	110	102.2	
11	B	2	45	93.34	ppb	1.41	100.00	90 -	110	93.3	
23	Na	1	45	2440.00	ppb	1.67	2500.00	90 -	110	97.6	
24	Mg	1	45	2450.00	ppb	2.21	2500.00	90 -	110	98.0	
27	Al	1	45	2468.00	ppb	3.22	2500.00	90 -	110	98.7	
39	K	1	45	2451.00	ppb	2.39	2500.00	90 -	110	98.0	
44	Ca	2	45	2446.00	ppb	1.95	2500.00	90 -	110	97.8	
47	Ti	1	45	97.68	ppb	5.20	100.00	90 -	110	97.7	
51	V	1	45	96.09	ppb	1.79	100.00	90 -	110	96.1	
52	Cr	1	45	96.94	ppb	2.88	100.00	90 -	110	96.9	
55	Mn	1	45	102.20	ppb	2.43	100.00	90 -	110	102.2	
56	Fe	1	72	2530.00	ppb	2.42	2500.00	90 -	110	101.2	
59	Co	1	72	99.82	ppb	2.03	100.00	90 -	110	99.8	
60	Ni	1	72	102.80	ppb	1.50	100.00	90 -	110	102.8	
63	Cu	1	72	98.81	ppb	1.96	100.00	90 -	110	98.8	
66	Zn	1	72	104.40	ppb	2.09	100.00	90 -	110	104.4	
75	As	1	72	100.60	ppb	1.96	100.00	90 -	110	100.6	
78	Se	1	72	102.90	ppb	2.23	100.00	90 -	110	102.9	
88	Sr	2	115	100.90	ppb	2.05	100.00	90 -	110	100.9	
95	Mo	2	115	95.01	ppb	1.36	100.00	90 -	110	95.0	
107	Ag	2	115	97.07	ppb	2.24	100.00	90 -	110	97.1	
111	Cd	2	115	100.70	ppb	2.15	100.00	90 -	110	100.7	
118	Sn	2	115	98.78	ppb	2.14	100.00	90 -	110	98.8	
121	Sb	2	115	95.07	ppb	2.05	100.00	90 -	110	95.1	
137	Ba	2	115	97.83	ppb	2.45	100.00	90 -	110	97.8	
205	Tl	2	209	97.49	ppb	2.27	100.00	90 -	110	97.5	
208	Pb	2	209	97.62	ppb	2.25	100.00	90 -	110	97.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3984394.00	0.89	4348639.50	91.6	70 -	120		
45	Sc	1	115328.34	1.58	104785.27	110.1	70 -	120		
45	Sc	2	5152611.50	1.61	5067973.50	101.7	70 -	120		
72	Ge	1	68977.05	1.12	63949.56	107.9	70 -	120		
115	In	2	5718219.00	1.11	5651741.50	101.2	70 -	120		
209	Bi	2	4632769.50	1.20	4522098.00	102.4	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14A30j01.B\021LCVL.D\021LCVL.D#

Date Acquired:	Jan 30 2014 11:52 am	Sample Name:	**ILCVL-140130**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 30 2014 10:56 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10050.00	ppb	0.78	5.00	70 -	130	######	Fail
9	Be	2	45	1.09	ppb	4.22	1.00	70 -	130	109.0	
11	B	2	45	21.89	ppb	1.46	20.00	70 -	130	109.5	
23	Na	1	45	99.94	ppb	0.95	100.00	70 -	130	99.9	
24	Mg	1	45	105.90	ppb	2.05	100.00	70 -	130	105.9	
27	Al	1	45	106.60	ppb	0.64	100.00	70 -	130	106.6	
39	K	1	45	110.40	ppb	0.50	100.00	70 -	130	110.4	
44	Ca	2	45	92.31	ppb	2.25	100.00	70 -	130	92.3	
47	Ti	1	45	6.13	ppb	10.70	5.00	70 -	130	122.6	
51	V	1	45	1.03	ppb	4.58	1.00	70 -	130	103.2	
52	Cr	1	45	5.32	ppb	4.42	5.00	70 -	130	106.4	
55	Mn	1	45	5.58	ppb	1.95	5.00	70 -	130	111.6	
56	Fe	1	72	110.40	ppb	1.89	100.00	70 -	130	110.4	
59	Co	1	72	5.34	ppb	4.08	5.00	70 -	130	106.7	
60	Ni	1	72	5.61	ppb	2.21	5.00	70 -	130	112.1	
63	Cu	1	72	5.29	ppb	1.95	5.00	70 -	130	105.7	
66	Zn	1	72	5.28	ppb	4.23	5.00	70 -	130	105.7	
75	As	1	72	5.56	ppb	0.60	5.00	70 -	130	111.2	
78	Se	1	72	5.45	ppb	8.09	5.00	70 -	130	108.9	
88	Sr	2	115	5.20	ppb	1.44	5.00	70 -	130	104.0	
95	Mo	2	115	5.28	ppb	3.24	5.00	70 -	130	105.5	
107	Ag	2	115	2.07	ppb	3.68	2.00	70 -	130	103.7	
111	Cd	2	115	1.15	ppb	2.33	1.00	70 -	130	114.8	
118	Sn	2	115	5.39	ppb	2.34	5.00	70 -	130	107.9	
121	Sb	2	115	1.99	ppb	2.37	2.00	70 -	130	99.7	
137	Ba	2	115	5.20	ppb	2.04	5.00	70 -	130	104.1	
205	Tl	2	209	1.05	ppb	1.83	1.00	70 -	130	105.1	
208	Pb	2	209	0.99	ppb	1.88	1.00	70 -	130	99.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4079940.00	1.27	4348639.50	93.8	70 -	120		
45	Sc	1	115380.21	2.37	104785.27	110.1	70 -	120		
45	Sc	2	5086555.50	1.09	5067973.50	100.4	70 -	120		
72	Ge	1	68959.74	1.02	63949.56	107.8	70 -	120		
115	In	2	5741208.50	1.05	5651741.50	101.6	70 -	120		
209	Bi	2	4653162.00	0.75	4522098.00	102.9	70 -	120		

ICB QC Report

C:\ICPCHEM\1\DATA\14A30j01.B\022_ICB.D\022_ICB.D#

Date Acquired:	Jan 30 2014 12:05 pm	Sample Name:	**ICB1-140130**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 30 2014 10:56 am	Instrument:	ICPMS3

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
7 Li 2 45	10650.00 ppb	1.70	5.00	Fail
9 Be 2 45	-0.01 ppb	20.81	0.80	
11 B 2 45	0.90 ppb	4.61	10.00	
23 Na 1 45	-12.69 ppb	5.67	50.00	
24 Mg 1 45	-3.04 ppb	12.69	50.00	
27 Al 1 45	-3.61 ppb	5.87	30.00	
39 K 1 45	-2.29 ppb	4.50	50.00	
44 Ca 2 45	-16.92 ppb	3.65	50.00	
47 Ti 1 45	-0.02 ppb	99.97	10.00	
51 V 1 45	-0.02 ppb	11.80	10.00	
52 Cr 1 45	-0.06 ppb	11.03	3.00	
55 Mn 1 45	-0.06 ppb	15.56	10.00	
56 Fe 1 72	-2.28 ppb	13.37	50.00	
59 Co 1 72	-0.04 ppb	24.74	3.00	
60 Ni 1 72	-0.07 ppb	10.00	3.00	
63 Cu 1 72	-0.16 ppb	1.80	3.00	
66 Zn 1 72	-0.48 ppb	25.57	10.00	
75 As 1 72	-0.02 ppb	14.57	10.00	
78 Se 1 72	0.15 ppb	22.11	10.00	
88 Sr 2 115	-0.14 ppb	1.73	10.00	
95 Mo 2 115	0.20 ppb	5.66	10.00	
107 Ag 2 115	-0.01 ppb	27.16	2.00	
111 Cd 2 115	-0.04 ppb	74.08	1.00	
118 Sn 2 115	0.00 ppb	10.26	10.00	
121 Sb 2 115	-0.03 ppb	12.69	1.00	
137 Ba 2 115	-0.03 ppb	13.33	3.00	
205 Tl 2 209	0.01 ppb	9.42	1.00	
208 Pb 2 209	-0.05 ppb	10.63	1.00	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li 2	4236372.00	1.62	4348639.50	97.4	70 - 120	
45 Sc 1	129927.51	2.34	104785.27	124.0	70 - 120	ISFail
45 Sc 2	5274494.00	2.30	5067973.50	104.1	70 - 120	
72 Ge 1	76489.38	1.88	63949.56	119.6	70 - 120	
115 In 2	5887778.50	1.73	5651741.50	104.2	70 - 120	
209 Bi 2	4755997.00	0.91	4522098.00	105.2	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A30j01.B\023SMPL.D\023SMPL.D#

Date Acquired:	Jan 30 2014 12:11 pm	Sample Name:	**1401180-05A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	5.00
Last Cal. Update:	Jan 30 2014 10:56 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	-8109.000	ppb	#REF!	1.67	2000.00	ND
9	Be	2	45	-0.017	ppb	#REF!	27.24	2000.00	ND
11	B	2	45	76.000	ppb	#REF!	0.21	2000.00	>RL
23	Na	1	45	30130.000	ppb	#REF!	0.79	25000.00	OUTCAL
24	Mg	1	45	1464.000	ppb	#REF!	3.01	25000.00	>RL
27	Al	1	45	15.340	ppb	#REF!	2.45	10000.00	J
39	K	1	45	492.200	ppb	#REF!	2.49	25000.00	>RL
44	Ca	2	45	21250.000	ppb	#REF!	1.51	25000.00	>RL
47	Ti	1	45	0.096	ppb	#REF!	89.23	2000.00	ND
51	V	1	45	0.302	ppb	#REF!	2.77	2000.00	ND
52	Cr	1	45	-0.031	ppb	#REF!	6.98	2000.00	ND
55	Mn	1	45	1.638	ppb	#REF!	6.64	2000.00	ND
56	Fe	1	72	6.861	ppb	#REF!	1.63	10000.00	ND
59	Co	1	72	-0.014	ppb	#REF!	18.03	2000.00	ND
60	Ni	1	72	0.272	ppb	#REF!	6.29	2000.00	ND
63	Cu	1	72	0.266	ppb	#REF!	11.74	2000.00	ND
66	Zn	1	72	1.629	ppb	#REF!	1.41	2000.00	ND
75	As	1	72	0.884	ppb	#REF!	1.14	2000.00	ND
78	Se	1	72	9.614	ppb	#REF!	3.02	2000.00	>RL
88	Sr	2	115	69.210	ppb	#REF!	1.69	2000.00	>RL
95	Mo	2	115	17.860	ppb	#REF!	3.33	2000.00	>RL
107	Ag	2	115	-0.010	ppb	#REF!	8.06	500.00	ND
111	Cd	2	115	-0.037	ppb	#REF!	215.59	2000.00	ND
118	Sn	2	115	-0.005	ppb	#REF!	4.92	2000.00	ND
121	Sb	2	115	160.300	ppb	#REF!	1.97	500.00	>RL
137	Ba	2	115	9.889	ppb	#REF!	1.10	2000.00	J
205	Tl	2	209	0.002	ppb	#REF!	7.71	2000.00	ND
208	Pb	2	209	-0.013	ppb	#REF!	4.95	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4078459.50	1.07	4348639.50	93.8	70 - 120	
45	Sc	1	121399.37	0.91	104785.27	115.9	70 - 120	
45	Sc	2	5073540.50	1.09	5067973.50	100.1	70 - 120	
72	Ge	1	71723.91	0.88	63949.56	112.2	70 - 120	
115	In	2	5624136.00	2.02	5651741.50	99.5	70 - 120	
209	Bi	2	4512328.50	0.75	4522098.00	99.8	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A30j01.B\024SMPL.D\024SMPL.D#

Date Acquired:	Jan 30 2014 12:17 pm	Sample Name:	**1401180-06A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	5.00
Last Cal. Update:	Jan 30 2014 10:56 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	-7297.000	ppb	#REF!	0.75	2000.00	ND
9	Be	2	45	-0.026	ppb	#REF!	28.38	2000.00	ND
11	B	2	45	32.860	ppb	#REF!	1.14	2000.00	>RL
23	Na	1	45	15040.000	ppb	#REF!	0.20	25000.00	>RL
24	Mg	1	45	3660.000	ppb	#REF!	1.58	25000.00	>RL
27	Al	1	45	11.670	ppb	#REF!	9.26	10000.00	J
39	K	1	45	1099.000	ppb	#REF!	0.83	25000.00	>RL
44	Ca	2	45	21420.000	ppb	#REF!	0.29	25000.00	>RL
47	Ti	1	45	0.122	ppb	#REF!	86.60	2000.00	ND
51	V	1	45	0.712	ppb	#REF!	4.14	2000.00	ND
52	Cr	1	45	-0.001	ppb	#REF!	12.21	2000.00	ND
55	Mn	1	45	0.345	ppb	#REF!	7.63	2000.00	ND
56	Fe	1	72	0.306	ppb	#REF!	4.54	10000.00	ND
59	Co	1	72	0.165	ppb	#REF!	15.79	2000.00	ND
60	Ni	1	72	2.483	ppb	#REF!	6.16	2000.00	ND
63	Cu	1	72	4.743	ppb	#REF!	1.07	2000.00	J
66	Zn	1	72	16.180	ppb	#REF!	3.02	2000.00	>RL
75	As	1	72	16.230	ppb	#REF!	1.38	2000.00	>RL
78	Se	1	72	18.090	ppb	#REF!	2.20	2000.00	>RL
88	Sr	2	115	96.030	ppb	#REF!	0.85	2000.00	>RL
95	Mo	2	115	34.060	ppb	#REF!	0.40	2000.00	>RL
107	Ag	2	115	-0.008	ppb	#REF!	34.80	500.00	ND
111	Cd	2	115	-0.009	ppb	#REF!	45.81	2000.00	ND
118	Sn	2	115	-0.033	ppb	#REF!	14.99	2000.00	ND
121	Sb	2	115	120.700	ppb	#REF!	0.68	500.00	>RL
137	Ba	2	115	19.260	ppb	#REF!	0.79	2000.00	>RL
205	Tl	2	209	0.015	ppb	#REF!	9.48	2000.00	ND
208	Pb	2	209	0.043	ppb	#REF!	0.56	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4117437.80	0.57	4348639.50	94.7	70 - 120	
45	Sc	1	121209.38	0.54	104785.27	115.7	70 - 120	
45	Sc	2	5086845.00	0.15	5067973.50	100.4	70 - 120	
72	Ge	1	71858.84	0.77	63949.56	112.4	70 - 120	
115	In	2	5627298.00	0.07	5651741.50	99.6	70 - 120	
209	Bi	2	4559446.00	0.60	4522098.00	100.8	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14A30j01.B\025SMPL.D\025SMPL.D#

Date Acquired:	Jan 30 2014 12:23 pm	Sample Name:	**1401180-07A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	5.00
Last Cal. Update:	Jan 30 2014 10:56 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	-8272.000	ppb	#REF!	0.31	2000.00	ND
9	Be	2	45	-0.011	ppb	#REF!	17.21	2000.00	ND
11	B	2	45	33.380	ppb	#REF!	0.86	2000.00	>RL
23	Na	1	45	14680.000	ppb	#REF!	1.05	25000.00	>RL
24	Mg	1	45	3590.000	ppb	#REF!	1.77	25000.00	>RL
27	Al	1	45	12.600	ppb	#REF!	6.33	10000.00	J
39	K	1	45	1070.000	ppb	#REF!	1.24	25000.00	>RL
44	Ca	2	45	21350.000	ppb	#REF!	1.76	25000.00	>RL
47	Ti	1	45	0.046	ppb	#REF!	69.30	2000.00	ND
51	V	1	45	0.737	ppb	#REF!	5.83	2000.00	ND
52	Cr	1	45	-0.007	ppb	#REF!	20.59	2000.00	ND
55	Mn	1	45	0.299	ppb	#REF!	15.22	2000.00	ND
56	Fe	1	72	0.504	ppb	#REF!	6.14	10000.00	ND
59	Co	1	72	0.175	ppb	#REF!	7.25	2000.00	ND
60	Ni	1	72	2.462	ppb	#REF!	1.97	2000.00	ND
63	Cu	1	72	4.627	ppb	#REF!	0.20	2000.00	J
66	Zn	1	72	15.940	ppb	#REF!	0.39	2000.00	>RL
75	As	1	72	15.840	ppb	#REF!	2.21	2000.00	>RL
78	Se	1	72	16.690	ppb	#REF!	7.01	2000.00	>RL
88	Sr	2	115	94.910	ppb	#REF!	1.16	2000.00	>RL
95	Mo	2	115	33.360	ppb	#REF!	2.35	2000.00	>RL
107	Ag	2	115	-0.014	ppb	#REF!	34.42	500.00	ND
111	Cd	2	115	-0.029	ppb	#REF!	159.32	2000.00	ND
118	Sn	2	115	-0.035	ppb	#REF!	3.37	2000.00	ND
121	Sb	2	115	118.900	ppb	#REF!	1.18	500.00	>RL
137	Ba	2	115	18.880	ppb	#REF!	0.42	2000.00	>RL
205	Tl	2	209	0.003	ppb	#REF!	2.21	2000.00	ND
208	Pb	2	209	0.089	ppb	#REF!	5.34	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4069177.80	0.63	4348639.50	93.6	70 - 120	
45	Sc	1	116694.27	0.92	104785.27	111.4	70 - 120	
45	Sc	2	4950506.50	1.43	5067973.50	97.7	70 - 120	
72	Ge	1	69613.17	0.82	63949.56	108.9	70 - 120	
115	In	2	5491186.00	0.74	5651741.50	97.2	70 - 120	
209	Bi	2	4437495.50	0.79	4522098.00	98.1	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14A30j01.B\036CCV1.D\036CCV1.D#

Date Acquired:	Jan 30 2014 01:29 pm	Sample Name:	CCV1-140130
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 30 2014 10:56 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	5175.00	ppb	0.42	200.00	90 -	110	2587.5	Fail
9	Be	2	45	216.60	ppb	0.40	200.00	90 -	110	108.3	
11	B	2	45	204.90	ppb	1.20	200.00	90 -	110	102.5	
23	Na	1	45	5029.00	ppb	1.94	5000.00	90 -	110	100.6	
24	Mg	1	45	5013.00	ppb	1.97	5000.00	90 -	110	100.3	
27	Al	1	45	5154.00	ppb	2.99	5000.00	90 -	110	103.1	
39	K	1	45	5210.00	ppb	1.68	5000.00	90 -	110	104.2	
44	Ca	2	45	5372.00	ppb	1.12	5000.00	90 -	110	107.4	
47	Ti	1	45	200.30	ppb	6.27	200.00	90 -	110	100.2	
51	V	1	45	191.20	ppb	2.40	200.00	90 -	110	95.6	
52	Cr	1	45	191.40	ppb	2.45	200.00	90 -	110	95.7	
55	Mn	1	45	203.90	ppb	2.24	200.00	90 -	110	102.0	
56	Fe	1	72	5101.00	ppb	2.81	5000.00	90 -	110	102.0	
59	Co	1	72	195.70	ppb	1.43	200.00	90 -	110	97.9	
60	Ni	1	72	199.50	ppb	1.36	200.00	90 -	110	99.8	
63	Cu	1	72	195.50	ppb	1.62	200.00	90 -	110	97.8	
66	Zn	1	72	205.90	ppb	1.58	200.00	90 -	110	103.0	
75	As	1	72	203.70	ppb	1.83	200.00	90 -	110	101.9	
78	Se	1	72	215.90	ppb	3.70	200.00	90 -	110	108.0	
88	Sr	2	115	212.70	ppb	1.77	200.00	90 -	110	106.4	
95	Mo	2	115	198.20	ppb	1.07	200.00	90 -	110	99.1	
107	Ag	2	115	196.40	ppb	1.21	200.00	90 -	110	98.2	
111	Cd	2	115	199.70	ppb	1.75	200.00	90 -	110	99.9	
118	Sn	2	115	199.70	ppb	1.57	200.00	90 -	110	99.9	
121	Sb	2	115	193.10	ppb	1.20	200.00	90 -	110	96.6	
137	Ba	2	115	196.30	ppb	1.56	200.00	90 -	110	98.2	
205	Tl	2	209	209.90	ppb	1.37	200.00	90 -	110	105.0	
208	Pb	2	209	200.70	ppb	1.41	200.00	90 -	110	100.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3870478.80	0.93	4348639.50	89.0	70 -	120		
45	Sc	1	112653.57	1.30	104785.27	107.5	70 -	120		
45	Sc	2	4705243.50	0.45	5067973.50	92.8	70 -	120		
72	Ge	1	65691.83	1.41	63949.56	102.7	70 -	120		
115	In	2	5173728.50	1.81	5651741.50	91.5	70 -	120		
209	Bi	2	4140560.80	1.61	4522098.00	91.6	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14A30j01.B\041LCVL.D\041LCVL.D#

Date Acquired:	Jan 30 2014 01:59 pm	Sample Name:	**LCVL1-140130**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 30 2014 10:56 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	612.60	ppb	0.21	5.00	70 -	130	######	Fail
9	Be	2	45	1.20	ppb	3.61	1.00	70 -	130	119.6	
11	B	2	45	23.32	ppb	1.36	20.00	70 -	130	116.6	
23	Na	1	45	93.09	ppb	1.27	100.00	70 -	130	93.1	
24	Mg	1	45	105.40	ppb	0.67	100.00	70 -	130	105.4	
27	Al	1	45	112.90	ppb	3.08	100.00	70 -	130	112.9	
39	K	1	45	123.20	ppb	4.94	100.00	70 -	130	123.2	
44	Ca	2	45	99.90	ppb	1.64	100.00	70 -	130	99.9	
47	Ti	1	45	5.62	ppb	16.04	5.00	70 -	130	112.3	
51	V	1	45	1.07	ppb	2.28	1.00	70 -	130	106.5	
52	Cr	1	45	4.96	ppb	3.36	5.00	70 -	130	99.2	
55	Mn	1	45	5.61	ppb	5.82	5.00	70 -	130	112.1	
56	Fe	1	72	108.70	ppb	2.82	100.00	70 -	130	108.7	
59	Co	1	72	5.20	ppb	1.85	5.00	70 -	130	104.0	
60	Ni	1	72	5.31	ppb	2.42	5.00	70 -	130	106.3	
63	Cu	1	72	5.02	ppb	2.74	5.00	70 -	130	100.4	
66	Zn	1	72	5.39	ppb	9.63	5.00	70 -	130	107.9	
75	As	1	72	5.53	ppb	0.88	5.00	70 -	130	110.5	
78	Se	1	72	6.33	ppb	5.85	5.00	70 -	130	126.5	
88	Sr	2	115	5.27	ppb	0.61	5.00	70 -	130	105.4	
95	Mo	2	115	5.04	ppb	3.78	5.00	70 -	130	100.9	
107	Ag	2	115	2.10	ppb	0.66	2.00	70 -	130	105.2	
111	Cd	2	115	1.11	ppb	6.92	1.00	70 -	130	110.5	
118	Sn	2	115	5.37	ppb	2.50	5.00	70 -	130	107.4	
121	Sb	2	115	2.32	ppb	3.10	2.00	70 -	130	115.9	
137	Ba	2	115	5.38	ppb	2.48	5.00	70 -	130	107.7	
205	Tl	2	209	1.12	ppb	2.74	1.00	70 -	130	111.5	
208	Pb	2	209	1.02	ppb	1.41	1.00	70 -	130	102.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3996705.30	0.49	4348639.50	91.9	70 -	120		
45	Sc	1	114959.84	1.89	104785.27	109.7	70 -	120		
45	Sc	2	4631646.50	0.81	5067973.50	91.4	70 -	120		
72	Ge	1	67090.19	2.15	63949.56	104.9	70 -	120		
115	In	2	5114431.00	0.15	5651741.50	90.5	70 -	120		
209	Bi	2	4206088.50	0.42	4522098.00	93.0	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14A30j01.B\043_CCB.D\043_CCB.D#

Date Acquired:	Jan 30 2014 02:13 pm	Sample Name:	**CCB1-140130**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 30 2014 10:56 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	7.044	ppb	0.87	2.00	2.00	Failsoil
9	Be	2	45	-0.016	ppb	13.29	0.10	0.30	
11	B	2	45	1.655	ppb	2.19	10.00	10.00	
23	Na	1	45	-13.880	ppb	5.97	50.00	#####	
24	Mg	1	45	-3.817	ppb	25.51	50.00	#####	
27	Al	1	45	-3.701	ppb	4.95	50.00	10.00	
39	K	1	45	6.657	ppb	2.54	50.00	#####	
44	Ca	2	45	-14.880	ppb	8.26	50.00	#####	
47	Ti	1	45	-0.094	ppb	0.00	4.00	3.00	
51	V	1	45	0.034	ppb	4.46	4.00	3.00	
52	Cr	1	45	-0.057	ppb	26.43	2.00	2.00	
55	Mn	1	45	-0.055	ppb	11.11	2.00	3.00	
56	Fe	1	72	-2.314	ppb	21.72	50.00	50.00	
59	Co	1	72	-0.037	ppb	29.06	2.00	3.00	
60	Ni	1	72	-0.069	ppb	55.03	2.00	3.00	
63	Cu	1	72	-0.195	ppb	13.58	2.00	2.00	
66	Zn	1	72	-0.424	ppb	18.37	4.00	2.00	
75	As	1	72	-0.011	ppb	8.66	2.00	2.00	
78	Se	1	72	0.080	ppb	3.12	0.60	2.00	
88	Sr	2	115	-0.138	ppb	6.43	4.00	3.00	
95	Mo	2	115	0.042	ppb	15.03	2.00	2.00	
107	Ag	2	115	-0.009	ppb	14.19	0.40	1.00	
111	Cd	2	115	-0.009	ppb	73.16	0.40	0.30	
118	Sn	2	115	-0.005	ppb	9.75	4.00	3.00	
121	Sb	2	115	0.101	ppb	14.46	2.00	0.80	
137	Ba	2	115	-0.020	ppb	36.90	2.00	3.00	
205	Tl	2	209	0.008	ppb	7.47	2.00	0.50	
208	Pb	2	209	-0.052	ppb	13.68	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4128741.30	1.47	4348639.50	94.9	70 - 120	
45	Sc	1	121217.28	1.01	104785.27	115.7	70 - 120	
45	Sc	2	4750727.50	0.80	5067973.50	93.7	70 - 120	
72	Ge	1	70366.56	0.75	63949.56	110.0	70 - 120	
115	In	2	5248101.00	1.73	5651741.50	92.9	70 - 120	
209	Bi	2	4312751.00	1.38	4522098.00	95.4	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\14A30j01.B\044__PB.D\044__PB.D#

Date Acquired:	Jan 30 2014 04:30 pm	Sample Name:	**MB-61584**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLK6020A_S
Operator:	SW	Bench Diln:	5.00
Last Cal. Update:	Jan 30 2014 10:56 am	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.	RSD(%)	MDL	RL	Flag
7	Li	2	45	-5662.000 ppb	0.66	2.0	8.00	
9	Be	2	45	-0.034 ppb	0.00	0.8	0.32	
11	B	2	45	0.679 ppb	0.35	10.0	30.00	
23	Na	1	45	-10.240 ppb	1.86	50.0	50.00	
24	Mg	1	45	-2.185 ppb	7.42	50.0	50.00	
27	Al	1	45	0.423 ppb	9.68	50.0	50.00	
39	K	1	45	10.630 ppb	1.40	50.0	50.00	
44	Ca	2	45	1.832 ppb	1.61	50.0	50.00	
47	Ti	1	45	0.105 ppb	45.83	4.0	10.00	
51	V	1	45	0.059 ppb	1.37	4.0	10.00	
52	Cr	1	45	0.064 ppb	2.82	2.0	8.00	
55	Mn	1	45	0.026 ppb	12.03	2.0	8.00	
56	Fe	1	72	-0.891 ppb	4.88	50.0	50.00	
59	Co	1	72	-0.043 ppb	32.77	2.0	8.00	
60	Ni	1	72	-0.013 ppb	4.45	2.0	8.00	
63	Cu	1	72	-0.210 ppb	10.10	2.0	8.00	
66	Zn	1	72	0.383 ppb	5.28	4.0	10.00	
75	As	1	72	-0.042 ppb	9.72	2.0	4.00	
78	Se	1	72	0.386 ppb	15.91	0.6	2.00	
88	Sr	2	115	-0.123 ppb	7.46	4.0	10.00	
95	Mo	2	115	-0.082 ppb	20.26	2.0	8.00	
107	Ag	2	115	-0.011 ppb	25.37	0.4	0.80	
111	Cd	2	115	-0.016 ppb	73.50	0.4	1.20	
118	Sn	2	115	4.889 ppb	2.36	4.0	10.00	J
121	Sb	2	115	-0.042 ppb	2.25	2.0	4.00	
137	Ba	2	115	-0.012 ppb	10.00	2.0	8.00	
205	Tl	2	209	-0.034 ppb	18.92	2.0	4.00	
208	Pb	2	209	-0.003 ppb	3.72	0.4	1.20	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4626233.50	0.26	4348639.50	106.4	70 - 120	
45	Sc	1	164200.91	0.95	104785.27	156.7	70 - 120	ISFail
45	Sc	2	5094244.50	0.91	5067973.50	100.5	70 - 120	
72	Ge	1	90874.16	0.40	63949.56	142.1	70 - 120	ISFail
115	In	2	5640466.50	0.29	5651741.50	99.8	70 - 120	
209	Bi	2	4725459.50	0.13	4522098.00	104.5	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\14A30j01.B\045_LCS.D\045_LCS.D#

Date Acquired:	Jan 30 2014 04:36 pm	Sample Name:	**LCS-61584**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS 6020A_S
Operator:	SW	Bench Diln:	5.00
Last Cal. Update:	Jan 30 2014 10:56 am	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	-887900.00	ppb	1.77	200.00	80 -	120	######	Fail
9	Be	2	45	215.40	ppb	1.32	200.00	80 -	120	107.7	
11	B	2	45	218.00	ppb	9.00	200.00	80 -	120	109.0	
23	Na	1	45	1024.00	ppb	0.81	1000.00	80 -	120	102.4	
24	Mg	1	45	1031.00	ppb	1.08	1000.00	80 -	120	103.1	
27	Al	1	45	1081.00	ppb	1.91	1000.00	80 -	120	108.1	
39	K	1	45	1172.00	ppb	0.64	1000.00	80 -	120	117.2	
44	Ca	2	45	1121.00	ppb	1.58	1000.00	80 -	120	112.1	
47	Ti	1	45	208.60	ppb	1.53	200.00	80 -	120	104.3	
51	V	1	45	183.80	ppb	1.51	200.00	80 -	120	91.9	
52	Cr	1	45	178.10	ppb	2.05	200.00	80 -	120	89.1	
55	Mn	1	45	206.30	ppb	1.59	200.00	80 -	120	103.2	
56	Fe	1	72	1004.00	ppb	1.88	1000.00	80 -	120	100.4	
59	Co	1	72	184.10	ppb	0.90	200.00	80 -	120	92.1	
60	Ni	1	72	187.10	ppb	1.19	200.00	80 -	120	93.6	
63	Cu	1	72	181.40	ppb	1.16	200.00	80 -	120	90.7	
66	Zn	1	72	194.00	ppb	0.87	200.00	80 -	120	97.0	
75	As	1	72	197.10	ppb	0.98	200.00	80 -	120	98.6	
78	Se	1	72	222.70	ppb	1.57	200.00	80 -	120	111.4	
88	Sr	2	115	212.00	ppb	1.50	200.00	80 -	120	106.0	
95	Mo	2	115	198.60	ppb	1.08	200.00	80 -	120	99.3	
107	Ag	2	115	201.50	ppb	1.34	200.00	80 -	120	100.8	
111	Cd	2	115	196.90	ppb	1.72	200.00	80 -	120	98.5	
118	Sn	2	115	206.80	ppb	1.42	200.00	80 -	120	103.4	
121	Sb	2	115	191.70	ppb	1.23	200.00	80 -	120	95.9	
137	Ba	2	115	198.50	ppb	1.22	200.00	80 -	120	99.3	
205	Tl	2	209	206.10	ppb	1.21	200.00	80 -	120	103.1	
208	Pb	2	209	195.60	ppb	1.05	200.00	80 -	120	97.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	4438713.50	1.44	4348639.50	102.1	70 -	120	
45	Sc	1	148889.86	0.77	104785.27	142.1	70 -	120	ISFail
45	Sc	2	5072590.50	0.77	5067973.50	100.1	70 -	120	
72	Ge	1	83690.68	0.26	63949.56	130.9	70 -	120	ISFail
115	In	2	5611824.50	1.22	5651741.50	99.3	70 -	120	
209	Bi	2	4671950.00	1.35	4522098.00	103.3	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\14A30j01.B\046_LCS.D\046_LCS.D#

Date Acquired:	Jan 30 2014 04:42 pm	Sample Name:	**LCSD-61584**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSD6020A_S
Operator:	SW	Bench Diln:	5.00
Last Cal. Update:	Jan 30 2014 10:56 am	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	-896200.00	ppb	1.03	200.00	80 -	120	######	Fail
9	Be	2	45	222.70	ppb	0.59	200.00	80 -	120	111.4	
11	B	2	45	217.70	ppb	1.52	200.00	80 -	120	108.9	
23	Na	1	45	1036.00	ppb	1.24	1000.00	80 -	120	103.6	
24	Mg	1	45	1056.00	ppb	2.02	1000.00	80 -	120	105.6	
27	Al	1	45	1112.00	ppb	2.34	1000.00	80 -	120	111.2	
39	K	1	45	1196.00	ppb	1.17	1000.00	80 -	120	119.6	
44	Ca	2	45	1155.00	ppb	0.53	1000.00	80 -	120	115.5	
47	Ti	1	45	212.50	ppb	1.32	200.00	80 -	120	106.3	
51	V	1	45	189.30	ppb	1.02	200.00	80 -	120	94.7	
52	Cr	1	45	185.10	ppb	1.66	200.00	80 -	120	92.6	
55	Mn	1	45	214.00	ppb	1.76	200.00	80 -	120	107.0	
56	Fe	1	72	1045.00	ppb	1.66	1000.00	80 -	120	104.5	
59	Co	1	72	193.00	ppb	0.93	200.00	80 -	120	96.5	
60	Ni	1	72	196.00	ppb	0.91	200.00	80 -	120	98.0	
63	Cu	1	72	187.70	ppb	0.65	200.00	80 -	120	93.9	
66	Zn	1	72	201.10	ppb	0.44	200.00	80 -	120	100.6	
75	As	1	72	202.60	ppb	0.91	200.00	80 -	120	101.3	
78	Se	1	72	229.00	ppb	1.42	200.00	80 -	120	114.5	
88	Sr	2	115	216.80	ppb	1.11	200.00	80 -	120	108.4	
95	Mo	2	115	205.20	ppb	0.61	200.00	80 -	120	102.6	
107	Ag	2	115	206.60	ppb	0.76	200.00	80 -	120	103.3	
111	Cd	2	115	201.50	ppb	0.94	200.00	80 -	120	100.8	
118	Sn	2	115	211.90	ppb	0.90	200.00	80 -	120	106.0	
121	Sb	2	115	197.80	ppb	0.88	200.00	80 -	120	98.9	
137	Ba	2	115	204.20	ppb	0.39	200.00	80 -	120	102.1	
205	Tl	2	209	213.10	ppb	1.04	200.00	80 -	120	106.6	
208	Pb	2	209	201.10	ppb	0.84	200.00	80 -	120	100.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4321779.50	0.28	4348639.50	99.4	70 -	120		
45	Sc	1	141824.08	1.24	104785.27	135.3	70 -	120		ISFail
45	Sc	2	4903378.00	0.44	5067973.50	96.8	70 -	120		
72	Ge	1	79521.87	0.47	63949.56	124.4	70 -	120		ISFail
115	In	2	5432821.00	0.75	5651741.50	96.1	70 -	120		
209	Bi	2	4499178.50	1.02	4522098.00	99.5	70 -	120		

DT QC Report

C:\ICPCHEM\1\DATA\14A30j01.B\049DT1.D\049DT1.D#

Date Acquired:	Jan 30 2014 05:00 pm	Sample Name:	**1401227-01A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD 6020A_S
Operator:	SW	Bench Diln:	25.00
Last Cal. Update:	Jan 30 2014 10:56 am	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	-47360.00	ppb	0.68	#########	90 - 110	-5.8	
9	Be	2	45	0.82	ppb	8.38	3.43	90 - 110	119.2	
11	B	2	45	20.35	ppb	2.37	84.31	90 - 110	120.7	
23	Na	1	45	756.70	ppb	0.90	3638.00	90 - 110	104.0	GOOD
24	Mg	1	45	4991.00	ppb	1.94	23980.00	90 - 110	104.1	GOOD
27	Al	1	45	23810.00	ppb	2.48	114100.00	90 - 110	104.3	GOOD
39	K	1	45	3707.00	ppb	1.03	17830.00	90 - 110	104.0	GOOD
44	Ca	2	45	23540.00	ppb	1.34	108800.00	90 - 110	108.2	GOOD
47	Ti	1	45	137.20	ppb	4.70	658.10	90 - 110	104.2	GOOD
51	V	1	45	23.81	ppb	3.14	114.30	90 - 110	104.2	GOOD
52	Cr	1	45	12.41	ppb	2.56	57.94	90 - 110	107.1	GOOD
55	Mn	1	45	279.30	ppb	1.63	1314.00	90 - 110	106.3	GOOD
56	Fe	1	72	11880.00	ppb	2.38	58050.00	90 - 110	102.3	GOOD
59	Co	1	72	5.03	ppb	1.19	24.25	90 - 110	103.8	GOOD
60	Ni	1	72	11.17	ppb	0.35	52.05	90 - 110	107.3	GOOD
63	Cu	1	72	22.57	ppb	2.06	104.60	90 - 110	107.9	GOOD
66	Zn	1	72	54.96	ppb	2.32	235.40	90 - 110	116.7	
75	As	1	72	4.16	ppb	3.64	19.35	90 - 110	107.4	GOOD
78	Se	1	72	2.56	ppb	14.50	11.82	90 - 110	108.2	GOOD
88	Sr	2	115	63.69	ppb	1.60	317.10	90 - 110	100.4	GOOD
95	Mo	2	115	0.25	ppb	7.25	0.98	90 - 110	125.5	
107	Ag	2	115	0.12	ppb	21.06	0.55	90 - 110	110.5	
111	Cd	2	115	0.41	ppb	9.81	2.09	90 - 110	98.4	GOOD
118	Sn	2	115	1.82	ppb	5.73	9.05	90 - 110	100.4	GOOD
121	Sb	2	115	1.06	ppb	5.32	4.72	90 - 110	111.8	
137	Ba	2	115	197.00	ppb	1.68	993.90	90 - 110	99.1	GOOD
205	Tl	2	209	0.28	ppb	7.49	1.28	90 - 110	108.8	GOOD
208	Pb	2	209	207.50	ppb	2.67	1032.00	90 - 110	100.5	GOOD

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4101782.50	1.54	4348639.50	94.3	70 - 120	
45	Sc	1	129459.45	1.52	104785.27	123.5	70 - 120	ISFail
45	Sc	2	4742270.50	1.05	5067973.50	93.6	70 - 120	
72	Ge	1	74226.60	1.40	63949.56	116.1	70 - 120	
115	In	2	5194713.00	1.32	5651741.50	91.9	70 - 120	
209	Bi	2	4282377.50	1.46	4522098.00	94.7	70 - 120	

PDS QC Report

C:\ICPCHEM\1\DATA\14A30j01.B\053_PDS.D\053_PDS.D#

Date Acquired:	Jan 30 2014 05:24 pm	Sample Name:	**1401227-01A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS 6020A_S
Operator:	SW	Bench Diln:	5.00
Last Cal. Update:	Jan 30 2014 10:56 am	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	-228000.00	ppb	1.44	#########	200	75-125	######	Fail
9	Be	2	45	206.10	ppb	0.91	3.43	200	75-125	101.3	
11	B	2	45	271.80	ppb	0.62	84.31	200	75-125	93.7	
23	Na	1	45	8894.00	ppb	1.30	3638.00	5000	75-125	105.1	
24	Mg	1	45	30410.00	ppb	0.79	23980.00	5000	75-125	128.6	Fail
27	Al	1	45	127200.00	ppb	1.81	114100.00	5000	75-125	262.0	Fail
39	K	1	45	24690.00	ppb	1.61	17830.00	5000	75-125	137.2	Fail
44	Ca	2	45	121700.00	ppb	0.92	108800.00	5000	75-125	258.0	Fail
47	Ti	1	45	902.00	ppb	1.81	658.10	200	75-125	122.0	
51	V	1	45	309.40	ppb	1.52	114.30	200	75-125	97.6	
52	Cr	1	45	243.60	ppb	1.67	57.94	200	75-125	92.8	
55	Mn	1	45	1617.00	ppb	1.61	1314.00	200	75-125	151.5	Fail
56	Fe	1	72	66610.00	ppb	1.71	58050.00	5000	75-125	171.2	Fail
59	Co	1	72	214.60	ppb	1.24	24.25	200	75-125	95.2	
60	Ni	1	72	243.50	ppb	1.43	52.05	200	75-125	95.7	
63	Cu	1	72	288.70	ppb	1.30	104.60	200	75-125	92.1	
66	Zn	1	72	431.20	ppb	1.01	235.40	200	75-125	97.9	
75	As	1	72	215.00	ppb	1.07	19.35	200	75-125	97.8	
78	Se	1	72	219.10	ppb	1.72	11.82	200	75-125	103.6	
88	Sr	2	115	546.20	ppb	1.24	317.10	200	75-125	114.5	
95	Mo	2	115	195.60	ppb	0.90	0.98	200	75-125	97.3	
107	Ag	2	115	66.75	ppb	2.20	0.55	200	75-125	33.1	Fail
111	Cd	2	115	193.20	ppb	1.41	2.09	200	75-125	95.6	
118	Sn	2	115	213.90	ppb	1.69	9.05	200	75-125	102.4	
121	Sb	2	115	191.40	ppb	1.34	4.72	200	75-125	93.3	
137	Ba	2	115	1298.00	ppb	1.09	993.90	200	75-125	152.0	Fail
205	Tl	2	209	212.50	ppb	1.67	1.28	200	75-125	105.6	
208	Pb	2	209	1312.00	ppb	1.40	1032.00	200	75-125	140.0	Fail

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3728833.30	0.91	4348639.50	85.7	70 - 120	
45	Sc	1	121800.62	0.73	104785.27	116.2	70 - 120	
45	Sc	2	4643104.50	0.69	5067973.50	91.6	70 - 120	
72	Ge	1	68125.56	0.91	63949.56	106.5	70 - 120	
115	In	2	4913013.50	1.13	5651741.50	86.9	70 - 120	
209	Bi	2	3974002.00	1.28	4522098.00	87.9	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14A30j01.B\054_MS.D\054_MS.D#

Date Acquired:	Jan 30 2014 05:30 pm	Sample Name:	**1401227-01A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS 6020A_S
Operator:	SW	Bench Diln:	5.00
Last Cal. Update:	Jan 30 2014 10:56 am	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	-1017000.00	ppb	0.74	########	200	80-120	######	Fail
9	Be	2	45	204.50	ppb	0.79	3.43	200	80-120	100.5	
11	B	2	45	278.00	ppb	1.11	84.31	200	80-120	96.8	
23	Na	1	45	4771.00	ppb	0.73	3638.00	1000	80-120	113.3	
24	Mg	1	45	25990.00	ppb	1.50	23980.00	1000	80-120	201.0	Fail
27	Al	1	45	123600.00	ppb	1.87	########	1000	80-120	950.0	Fail
39	K	1	45	20120.00	ppb	2.26	17830.00	1000	80-120	229.0	Fail
44	Ca	2	45	134300.00	ppb	1.62	########	1000	80-120	2550.0	Fail
47	Ti	1	45	853.80	ppb	2.37	658.10	200	80-120	97.9	
51	V	1	45	312.10	ppb	1.56	114.30	200	80-120	98.9	
52	Cr	1	45	246.00	ppb	1.62	57.94	200	80-120	94.0	
55	Mn	1	45	1441.00	ppb	1.59	1314.00	200	80-120	63.5	Fail
56	Fe	1	72	62970.00	ppb	1.66	58050.00	1000	80-120	492.0	Fail
59	Co	1	72	213.20	ppb	0.90	24.25	200	80-120	94.5	
60	Ni	1	72	245.50	ppb	1.00	52.05	200	80-120	96.7	
63	Cu	1	72	349.80	ppb	1.09	104.60	200	80-120	122.6	Fail
66	Zn	1	72	488.30	ppb	1.70	235.40	200	80-120	126.5	Fail
75	As	1	72	214.00	ppb	1.03	19.35	200	80-120	97.3	
78	Se	1	72	221.60	ppb	1.22	11.82	200	80-120	104.9	
88	Sr	2	115	556.00	ppb	1.35	317.10	200	80-120	119.4	
95	Mo	2	115	190.80	ppb	1.33	0.98	200	80-120	94.9	
107	Ag	2	115	192.70	ppb	1.22	0.55	200	80-120	96.1	
111	Cd	2	115	195.50	ppb	1.12	2.09	200	80-120	96.7	
118	Sn	2	115	213.00	ppb	1.40	9.05	200	80-120	102.0	
121	Sb	2	115	73.06	ppb	1.00	4.72	200	80-120	34.2	Fail
137	Ba	2	115	1226.00	ppb	1.04	993.90	200	80-120	116.0	
205	Tl	2	209	219.00	ppb	1.35	1.28	200	80-120	108.9	
208	Pb	2	209	605.20	ppb	1.34	1032.00	200	80-120	-213.4	Fail

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3520759.50	1.16	4348639.50	81.0	70 - 120	
45	Sc	1	119320.18	1.12	104785.27	113.9	70 - 120	
45	Sc	2	4511267.50	1.21	5067973.50	89.0	70 - 120	
72	Ge	1	67028.96	0.87	63949.56	104.8	70 - 120	
115	In	2	4818958.50	1.21	5651741.50	85.3	70 - 120	
209	Bi	2	3880310.80	1.14	4522098.00	85.8	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14A30j01.B\055_MS.D\055_MS.D#

Date Acquired:	Jan 30 2014 05:36 pm	Sample Name:	**1401227-01A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD 6020A_S
Operator:	SW	Bench Diln:	5.00
Last Cal. Update:	Jan 30 2014 10:56 am	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	-1019000.00	ppb	1.78	########	200	80-120	######	Fail
9	Be	2	45	207.30	ppb	0.86	3.43	200	80-120	101.9	
11	B	2	45	279.70	ppb	1.27	84.31	200	80-120	97.7	
23	Na	1	45	4889.00	ppb	0.87	3638.00	1000	80-120	125.1	Fail
24	Mg	1	45	26540.00	ppb	1.79	23980.00	1000	80-120	256.0	Fail
27	Al	1	45	124600.00	ppb	2.38	########	1000	80-120	1050.0	Fail
39	K	1	45	20940.00	ppb	1.94	17830.00	1000	80-120	311.0	Fail
44	Ca	2	45	108200.00	ppb	0.99	########	1000	80-120	-60.0	Fail
47	Ti	1	45	864.40	ppb	2.40	658.10	200	80-120	103.2	
51	V	1	45	311.60	ppb	1.75	114.30	200	80-120	98.7	
52	Cr	1	45	248.50	ppb	1.74	57.94	200	80-120	95.3	
55	Mn	1	45	1442.00	ppb	1.43	1314.00	200	80-120	64.0	Fail
56	Fe	1	72	62290.00	ppb	1.62	58050.00	1000	80-120	424.0	Fail
59	Co	1	72	216.90	ppb	1.24	24.25	200	80-120	96.3	
60	Ni	1	72	243.80	ppb	1.53	52.05	200	80-120	95.9	
63	Cu	1	72	284.00	ppb	1.08	104.60	200	80-120	89.7	
66	Zn	1	72	405.20	ppb	0.89	235.40	200	80-120	84.9	
75	As	1	72	217.70	ppb	1.14	19.35	200	80-120	99.2	
78	Se	1	72	220.80	ppb	2.32	11.82	200	80-120	104.5	
88	Sr	2	115	536.80	ppb	1.37	317.10	200	80-120	109.8	
95	Mo	2	115	193.20	ppb	1.55	0.98	200	80-120	96.1	
107	Ag	2	115	195.20	ppb	1.31	0.55	200	80-120	97.3	
111	Cd	2	115	196.00	ppb	1.37	2.09	200	80-120	97.0	
118	Sn	2	115	215.30	ppb	1.40	9.05	200	80-120	103.1	
121	Sb	2	115	76.16	ppb	1.51	4.72	200	80-120	35.7	Fail
137	Ba	2	115	1166.00	ppb	1.14	993.90	200	80-120	86.0	
205	Tl	2	209	221.00	ppb	1.82	1.28	200	80-120	109.9	
208	Pb	2	209	596.40	ppb	0.99	1032.00	200	80-120	-217.8	Fail

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3536941.50	1.02	4348639.50	81.3	70 - 120	
45	Sc	1	119703.41	0.93	104785.27	114.2	70 - 120	
45	Sc	2	4498704.00	0.66	5067973.50	88.8	70 - 120	
72	Ge	1	67148.85	0.71	63949.56	105.0	70 - 120	
115	In	2	4777770.00	0.94	5651741.50	84.5	70 - 120	
209	Bi	2	3877893.80	1.40	4522098.00	85.8	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14A30j01.B\056CCV1.D\056CCV1.D#

Date Acquired:	Jan 30 2014 05:42 pm	Sample Name:	**CCV2-140130**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 30 2014 10:56 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8001.00	ppb	1.38	200.00	90 -	110	4000.5	Fail
9	Be	2	45	209.20	ppb	0.94	200.00	90 -	110	104.6	
11	B	2	45	200.60	ppb	1.05	200.00	90 -	110	100.3	
23	Na	1	45	4828.00	ppb	2.36	5000.00	90 -	110	96.6	
24	Mg	1	45	4799.00	ppb	1.81	5000.00	90 -	110	96.0	
27	Al	1	45	5264.00	ppb	2.83	5000.00	90 -	110	105.3	
39	K	1	45	5309.00	ppb	1.80	5000.00	90 -	110	106.2	
44	Ca	2	45	5310.00	ppb	2.69	5000.00	90 -	110	106.2	
47	Ti	1	45	198.80	ppb	5.29	200.00	90 -	110	99.4	
51	V	1	45	182.60	ppb	1.84	200.00	90 -	110	91.3	
52	Cr	1	45	182.00	ppb	2.48	200.00	90 -	110	91.0	
55	Mn	1	45	203.60	ppb	2.35	200.00	90 -	110	101.8	
56	Fe	1	72	5021.00	ppb	2.59	5000.00	90 -	110	100.4	
59	Co	1	72	184.20	ppb	2.45	200.00	90 -	110	92.1	
60	Ni	1	72	186.00	ppb	1.99	200.00	90 -	110	93.0	
63	Cu	1	72	181.80	ppb	1.76	200.00	90 -	110	90.9	
66	Zn	1	72	200.50	ppb	1.77	200.00	90 -	110	100.3	
75	As	1	72	201.00	ppb	1.89	200.00	90 -	110	100.5	
78	Se	1	72	225.10	ppb	2.41	200.00	90 -	110	112.6	Fail
88	Sr	2	115	207.20	ppb	2.00	200.00	90 -	110	103.6	
95	Mo	2	115	194.70	ppb	1.55	200.00	90 -	110	97.4	
107	Ag	2	115	192.70	ppb	1.92	200.00	90 -	110	96.4	
111	Cd	2	115	196.40	ppb	1.49	200.00	90 -	110	98.2	
118	Sn	2	115	194.90	ppb	1.54	200.00	90 -	110	97.5	
121	Sb	2	115	189.10	ppb	1.84	200.00	90 -	110	94.6	
137	Ba	2	115	195.10	ppb	1.91	200.00	90 -	110	97.6	
205	Tl	2	209	203.70	ppb	1.68	200.00	90 -	110	101.9	
208	Pb	2	209	194.10	ppb	1.90	200.00	90 -	110	97.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3810316.50	1.43	4348639.50	87.6	70 -	120		
45	Sc	1	121906.75	1.14	104785.27	116.3	70 -	120		
45	Sc	2	4673155.50	1.61	5067973.50	92.2	70 -	120		
72	Ge	1	70798.57	0.89	63949.56	110.7	70 -	120		
115	In	2	5167617.00	2.14	5651741.50	91.4	70 -	120		
209	Bi	2	4306486.00	2.37	4522098.00	95.2	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14A30j01.B\062LCVL.D\062LCVL.D#

Date Acquired:	Jan 30 2014 06:18 pm	Sample Name:	**LCVL2-140130**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 30 2014 10:56 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	2822.00	ppb	1.10	5.00	70 -	130	######	Fail
9	Be	2	45	1.18	ppb	4.70	1.00	70 -	130	117.6	
11	B	2	45	22.59	ppb	1.16	20.00	70 -	130	113.0	
23	Na	1	45	88.33	ppb	1.32	100.00	70 -	130	88.3	
24	Mg	1	45	99.76	ppb	2.51	100.00	70 -	130	99.8	
27	Al	1	45	113.60	ppb	0.79	100.00	70 -	130	113.6	
39	K	1	45	121.60	ppb	2.12	100.00	70 -	130	121.6	
44	Ca	2	45	94.33	ppb	0.49	100.00	70 -	130	94.3	
47	Ti	1	45	4.75	ppb	11.82	5.00	70 -	130	94.9	
51	V	1	45	1.06	ppb	4.39	1.00	70 -	130	106.2	
52	Cr	1	45	4.72	ppb	2.64	5.00	70 -	130	94.3	
55	Mn	1	45	5.45	ppb	3.59	5.00	70 -	130	109.0	
56	Fe	1	72	106.30	ppb	1.08	100.00	70 -	130	106.3	
59	Co	1	72	4.96	ppb	1.96	5.00	70 -	130	99.2	
60	Ni	1	72	5.19	ppb	4.65	5.00	70 -	130	103.8	
63	Cu	1	72	4.68	ppb	1.16	5.00	70 -	130	93.7	
66	Zn	1	72	5.16	ppb	2.42	5.00	70 -	130	103.2	
75	As	1	72	5.50	ppb	2.43	5.00	70 -	130	110.1	
78	Se	1	72	6.67	ppb	2.46	5.00	70 -	130	133.3	Fail
88	Sr	2	115	5.21	ppb	1.00	5.00	70 -	130	104.2	
95	Mo	2	115	5.09	ppb	0.82	5.00	70 -	130	101.8	
107	Ag	2	115	2.12	ppb	2.46	2.00	70 -	130	105.9	
111	Cd	2	115	1.11	ppb	7.18	1.00	70 -	130	110.7	
118	Sn	2	115	5.30	ppb	2.35	5.00	70 -	130	106.0	
121	Sb	2	115	2.17	ppb	2.38	2.00	70 -	130	108.5	
137	Ba	2	115	5.23	ppb	2.23	5.00	70 -	130	104.7	
205	Tl	2	209	1.09	ppb	3.16	1.00	70 -	130	109.2	
208	Pb	2	209	0.99	ppb	4.81	1.00	70 -	130	98.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3998248.80	1.19	4348639.50	91.9	70 -	120		
45	Sc	1	123814.13	1.20	104785.27	118.2	70 -	120		
45	Sc	2	4662287.50	0.98	5067973.50	92.0	70 -	120		
72	Ge	1	71947.68	1.06	63949.56	112.5	70 -	120		
115	In	2	5171055.50	1.29	5651741.50	91.5	70 -	120		
209	Bi	2	4323971.50	0.92	4522098.00	95.6	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14A30j01.B\064_CCB.D\064_CCB.D#

Date Acquired:	Jan 30 2014 06:30 pm	Sample Name:	**CCB2-140130**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jan 30 2014 10:56 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	517.300	ppb	2.59	2.00	2.00	Failsoil
9	Be	2	45	-0.021	ppb	9.36	0.10	0.30	
11	B	2	45	1.283	ppb	3.26	10.00	10.00	
23	Na	1	45	-16.150	ppb	3.64	50.00	#####	
24	Mg	1	45	-3.479	ppb	14.78	50.00	#####	
27	Al	1	45	-3.868	ppb	15.57	50.00	10.00	
39	K	1	45	8.464	ppb	2.02	50.00	#####	
44	Ca	2	45	-17.100	ppb	4.36	50.00	#####	
47	Ti	1	45	-0.094	ppb	0.00	4.00	3.00	
51	V	1	45	0.051	ppb	7.66	4.00	3.00	
52	Cr	1	45	-0.058	ppb	5.88	2.00	2.00	
55	Mn	1	45	-0.047	ppb	34.33	2.00	3.00	
56	Fe	1	72	-2.354	ppb	8.68	50.00	50.00	
59	Co	1	72	-0.041	ppb	18.18	2.00	3.00	
60	Ni	1	72	-0.071	ppb	36.06	2.00	3.00	
63	Cu	1	72	-0.244	ppb	19.17	2.00	2.00	
66	Zn	1	72	-0.435	ppb	7.55	4.00	2.00	
75	As	1	72	0.006	ppb	9.94	2.00	2.00	
78	Se	1	72	0.350	ppb	4.88	0.60	2.00	
88	Sr	2	115	-0.147	ppb	20.72	4.00	3.00	
95	Mo	2	115	0.025	ppb	5.38	2.00	2.00	
107	Ag	2	115	-0.002	ppb	17.17	0.40	1.00	
111	Cd	2	115	-0.028	ppb	65.84	0.40	0.30	
118	Sn	2	115	-0.038	ppb	10.05	4.00	3.00	
121	Sb	2	115	0.060	ppb	16.27	2.00	0.80	
137	Ba	2	115	-0.036	ppb	30.12	2.00	3.00	
205	Tl	2	209	0.011	ppb	10.44	2.00	0.50	
208	Pb	2	209	-0.051	ppb	11.93	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3924521.50	2.96	4348639.50	90.2	70 - 120	
45	Sc	1	122394.97	1.74	104785.27	116.8	70 - 120	
45	Sc	2	4529737.50	2.91	5067973.50	89.4	70 - 120	
72	Ge	1	71075.21	1.58	63949.56	111.1	70 - 120	
115	In	2	5012702.50	3.80	5651741.50	88.7	70 - 120	
209	Bi	2	4147548.80	3.29	4522098.00	91.7	70 - 120	

ECS Environmental Chemistry Services

PO Box 79782 Houston, TX 77279♦Voice/Fax:(713) 935-0222♦ecschem@sbcglobal.net

To: William Gamblin, Project Manager, Daniel B. Stephens & Associates, Inc.

From: Nan Toole, ECS Environmental Chemistry Services

Date: 4/7/2014

Re: Data Review Memorandum, Rockwool Industries, Inc. Federal Superfund Site, Groundwater Sampling Event, March 2014

This Data Review Memorandum summarizes the results of the data review conducted for samples collected during March 2014 from the Rockwool Industries, Inc. Federal Superfund Site. ECS Environmental Chemistry Services (ECS) reviewed chemical data analyzed by DHL Analytical in Round Rock, Texas. The following data are covered by this memo:

DATA PACKAGE	LAB SAMPLE ID	FIELD SAMPLE ID	DATE COLL.	MEDIA	PARAMETER
1403158	1403158-01	MW-20	03/19/2014	Aqueous	MET
	1403158-02	MW-11	03/19/2014	Aqueous	MET
	1403158-03	MW-14	03/19/2014	Aqueous	MET
	1403158-04	MW-7	03/19/2014	Aqueous	MET
	1403158-05	MW-19	03/19/2014	Aqueous	MET
	1403158-06	MW-24-90	03/19/2014	Aqueous	MET
	1403158-07	MW-18	03/19/2014	Aqueous	MET
	1403158-08	MW-27-90	03/19/2014	Aqueous	MET
	1403158-09	MW-28-90	03/19/2014	Aqueous	MET
	1403158-10	MW-9	03/19/2014	Aqueous	MET
	1403158-11	ER-1	03/19/2014	Aqueous	MET
	1403158-12	MW-22	03/19/2014	Aqueous	MET
	1403158-13	MW-37-90	03/19/2014	Aqueous	MET
	1403158-14	MW-38-90	03/19/2014	Aqueous	MET
	1403158-15	MW-35-90	03/19/2014	Aqueous	MET
	1403158-16	MW-10	03/19/2014	Aqueous	MET
	1403158-17	MW-21	03/19/2014	Aqueous	MET
	1403158-18	MW-30-90	03/19/2014	Aqueous	MET
	1403158-19	MW-29-90	03/19/2014	Aqueous	MET
	1403158-20	MW-17	03/19/2014	Aqueous	MET
	1403158-21	MW-33-90	03/19/2014	Aqueous	MET
	1403158-22	MW-34-90	03/19/2014	Aqueous	MET
	1403158-23	DUP-1	03/19/2014	Aqueous	MET
	1403158-24	DUP-2	03/19/2014	Aqueous	MET

MET=ICP/MS metals (antimony, arsenic, lead) by EPA Method 6020A

Analytical data were evaluated for conformance to the requirements of Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW-846) and the TCEQ Quality Assurance Project Plan (QAPP) for the Federal Superfund Program (Revision 10.0, QTRAK#13-462).

The purpose of this sampling event was to compare assess groundwater constituent concentrations. The technical data review resulted in no significant quality control anomalies, no rejected data and no corrective actions taken or recommended for future analyses.

The Data Review Results are provided in the following attachment.

ECS Environmental Chemistry Services

PO Box 79782 Houston, TX 77279♦Voice/Fax:(713) 935-0222♦ecschem@sbcglobal.net

Data Review Results Attachment

ECS Environmental Chemistry Services

PO Box 79782 Houston, TX 77279♦Voice/Fax:(713) 935-0222♦ecschem@sbcglobal.net

Data Review Results

Items identified in the Laboratory Review Checklist (LRC) as outside of control limits for laboratory performance criteria were evaluated for the data packages covered by this report. The evaluation of the sample specific items is covered below. All samples were received in good condition. A copy of the original Chain-of-Custody (C-O-C) and airbill receipt were present in the data packages. The data package included all requested analyses on the C-O-C. The following table summarizes the data review qualifiers that were applied to the data.

METALS

For metals data, the following items are reviewed in this section:

- Holding Time/Preservation Requirements
- Blanks
- Laboratory Control Samples
- Matrix Spikes
- Matrix Spike Duplicates
- Field Duplicates

The following sections specify the reasons for the data validation qualifiers that are presented in Appendix A .

Holding Time/Preservation Requirements

The maximum holding time from date of collection to date of analysis for metals in aqueous and soil matrix samples is 180 days. This holding time was met for all of the samples in this data set. None of the metals data were qualified based on holding times.

Blanks

All associated blanks were free of any reportable concentration for all reported analytes above SDLs. None of the metals data were qualified based on blank data.

Laboratory Control Samples (LCS)

The LCS review criteria for metals data are as follows:

ACCURACY (%R)	PRECISION (RELATIVE PERCENT DIFFERENCE)
70%-130%	30%

One LCS was analyzed with each analytical batch. These criteria were met for all the samples in this data set. None of the metals data were qualified based on LCS data.

ECS Environmental Chemistry Services

PO Box 79782 Houston, TX 77279♦Voice/Fax:(713) 935-0222♦ecschem@sbcglobal.net

Matrix Spikes

The matrix spike review criteria for metals data are as follows:

ACCURACY (%R)
70%-130%

One MS was analyzed with every analytical batch. These criteria were met for all the samples in this data set.

Matrix Spike Duplicates

The matrix spike duplicate review criteria for metals data are as follows:

PRECISION (RELATIVE PERCENT DIFFERENCE)	DIFFERENCE
30%	+ OR- SDL*

One duplicate was analyzed with every analytical batch. These criteria were met for all the samples in this data set. None of the metals data were qualified based on duplicate data.

Field Duplicates

For aqueous matrix samples, when both the original and duplicate result are greater than 5 times the MQL, the RPD was equal to or less than 30%. For aqueous matrix samples, when one or both of the original and duplicate results are less than 5 times the MQL, the results agree within 2 times the greater SDL. The results of this evaluation of all detected results are shown in the following table:

SDG	FIELD DUP ID	ANALYTE	ORIGINAL RESULT	DUPLICATE RESULT	QC RESULT	CRITERIA
1403158	1403158-15/23	Antimony	0.166	0.149	RPD:11%	<=30%
		Arsenic	0.0558	0.0446	RPD:22%	<=30%
		Lead	**0.0479**	**0.0268**	**RPD:56%**	**<=30%**
		Antimony	0.305	0.316	RPD:4%	<=30%
		Arsenic	0.447	0.463	RPD:4%	<=30%
		Lead	0.000894	0.00114	DIF:0.000246	<=0.0006

The result listed in bold type in the table above were qualified based on field duplicate data as estimated with UJI qualifiers for non-detects and JI-FD qualifiers for detected analytes.

ECS Environmental Chemistry Services

PO Box 79782 Houston, TX 77279♦Voice/Fax:(713) 935-0222♦ecschem@sbcglobal.net

APPENDIX A

QUALIFIED ANALYTICAL DATA

March 28, 2014

Paul Kirby
D. B. Stephens & Assoc, Inc.
4030 W Braker #325
Austin, Texas 78759
TEL: (512) 821-2765
FAX

Order No.: 1403158

RE: Rockwool TCEQ Belton, TX

Dear Paul Kirby:

DHL Analytical, Inc. received 24 sample(s) on 3/20/2014 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-13-11

Table of Contents

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 64546

CHAIN-OF-CUSTODY

CLIENT: DBSA
ADDRESS: 4030 West Braker Lane Ste. 325 Austin Tx
PHONE: 512-821-2765 FAX/E-MAIL: wgamblin@dbstephens.com
DATA REPORTED TO: William Gamblin
ADDITIONAL REPORT COPIES TO: Invoice per contract

DATE: 3/19/2014 PAGE 1 OF 2
PO #: — DHL WORK ORDER #: 019593 | 403158
PROJECT LOCATION OR NAME: Rockwool - TCEQ - Belton, TX
CLENT PROJECT #: ES14.AIR0.12 COLLECTOR: B. Camacho / Paul Kirby

Authorize 5% surcharge for TRRP Report? ☐ Yes ☒ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☐ MTBE ☐ (METHOD 8021)	TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐	GRO (METHOD 8015) ☐ DRO (METHOD 81051 ☐	VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐	8081 PEST ☐ 608 PEST/PCB ☐ 8270 PCB ☐ 8270 PEST ☐	8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐	8321 HERB ☐ 8330 EXPL ☐ PERCHLORATE ☐	METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ ☐	RCRA ☐ TX11 ☐ ☐	PH ☐ HEX CHROM ☐ ALKALINITY ☐ ☐	CHLORIDE ☐ ANIONS ☐ ☐	TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐	TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	FIELD NOTES
MW-20	01	3/19/14	0914	W	P, 250mL	1		X		X										X							See work ORDER
MW-11	02	3/19/14	1014	W	P, 250mL	1		X		X										X							for detailed list
MW-14	03	3/19/14	1059	W	P, 250mL	1		X		X										X							
MW-7	04	3/19/14	1156	W	P, 250mL	1		X		X										X							
MW-19	05	3/19/14	1259	W	P, 250mL	1		X		X										X							
MW-24-90	06	3/19/14	1330	W	P, 250mL	1		X		X										X							
MW-18	07	3/19/14	1419	W	P, 250mL	1		X		X										X							
MW-27-90	08	3/19/14	1510	W	P, 250mL	1		X		X										X							
MW-28-90	09	3/19/14	1700	W	P, 250mL	1		X		X										X							
MW-9	10	3/19/14	1626	W	P, 250mL	1		X		X										X							
ER-1	11	3/19/14	1630	W	P, 250mL	1		X		X										X							
			3-19-14																								
TOTAL						11																					

RELINQUISHED BY: (Signature) Ben Camacho — DATE/TIME 3-20-14 0946 — RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) — DATE/TIME — RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) — DATE/TIME — RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

3

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 1.4, 0.8 THERM #: 57
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL #: _____
☐ APC DELIVERY
☒ HAND DELIVERED

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 64547

CHAIN-OF-CUSTODY

CLIENT: DBS&A
ADDRESS: 9030 W. Braker Lane Ste 325 Austin TX 78759
PHONE: 512-821-2765 FAX/E-MAIL: wgamblin@dbstephens.com
DATA REPORTED TO: William Gamblin
ADDITIONAL REPORT COPIES TO: Invoice per contract requirements

DATE: 3/19/14 PAGE 2 OF 2
PO #: — DHL WORK ORDER #: 019593 | 403153
PROJECT LOCATION OR NAME: Rockwool - TCEQ - Belton, TX
CLENT PROJECT #: ES14.AIR0.12 COLLECTOR: B.CHAMACHO/P.Kirby

Authorize 5% surcharge for TRRP Report? ☐ Yes ☒ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ [METHOD 8021] | TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ | GRO [METHOD 8015] ☐ DRO [METHOD 8105] ☐ | VOC 8260 ☐ VOC 524 ☐ VOC 8260/5035 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ | 8081 PEST ☐ 608 PEST/PCB ☐ 8270 PEST ☐ | 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ | 8321 HERB ☐ 8330 EXPL ☐ PERCHLORATE ☐ | METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ ____ ☐ | RCRA ☐ TX11 ☐ | PH ☐ HEX CHROM ☐ ALKALINITY ☐ | CHLORIDE ☐ ANIONS ____ ☐ | TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ | TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ %MOISTURE ☐ CYANIDE ☐

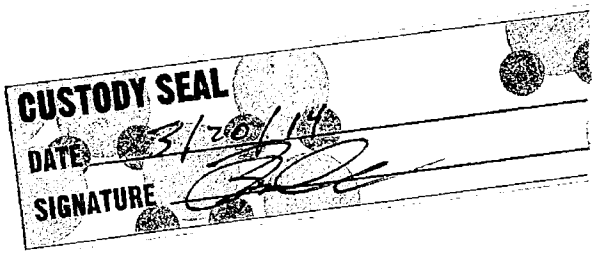
Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 NaOH	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
MW-22	12	3/19/14	0900	W	P, 250mL	1		X		X		X	See work order for detailed list
MW-37-90	13	3/19/14	1015	W	P 250mL	1		X		X		X	
MW-38-90	14	3/19/14	1130	W	P 250mL	1		X		X		X	
MW-35-90	15	3/19/14	1200	W	P 250mL	1		X		X		X	
MW-10	16	3/19/14	1300	W	P 250mL	1		X		X		X	
MW-21	17	3/19/14	1050	W	P 250mL	1		X		X		X	
MW-21 MS	~~18~~	3/19/14	1050	W	P 250mL	1		X		X		X	
MW-21 MSD	~~18~~	3/19/14	1050	W	P 250mL	1		X		X		X	
MW-30-90	18	3/19/14	1320	W	P 250mL	1		X		X		X	
MW-29-90	19	3/19/14	1350	W	P 250mL	1		X		X		X	
MW-17	20	3/19/14	1430	W	P 250mL	1		X		X		X	
MW-33-90	21	3/19/14	1505	W	P 250mL	1		X		X		X	
MW-34-90	22	3/19/14	1540	W	P 250mL	1		X		X		X	
Dup-1	23	3/19/14	—	W	P 250mL	1		X		X		X	
Dup-2	24	3/19/14	—	W	P 250mL	1		X		X		X	
TOTAL						15							

RELINQUISHED BY: (Signature) Ben Camacho DATE/TIME 3/20/14 0946 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

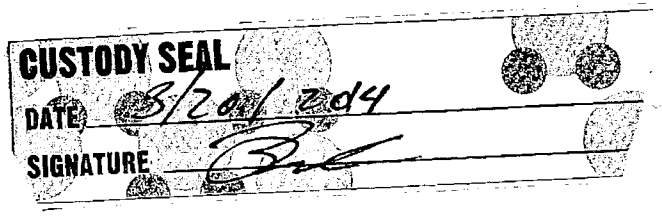
☐ DHL DISPOSAL @ $5.00 each ☐ Return

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 1.4.0.8 THERM #: 57
CUSTODY SEALS: ☐ BROKEN ☑ INTACT ☐ NOT USED
☐ CARRIER BILL #: _____
☐ APC DELIVERY
☑ HAND DELIVERED


CUSTODY SEAL
DATE 8/20/14
SIGNATURE


QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900


CUSTODY SEAL
DATE 8/20/2014
SIGNATURE


QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name D. B. Stephens & Assoc, Inc.

Date Received: 3/20/2014

Work Order Number 1403158

Received by JB

Checklist completed by: Signature 3/20/2014 Date

Reviewed by JD Initials 3/20/2014 Date

Carrier name Hand Delivered

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☑	No ☐	Not Present ☐
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	1.4 °C 0-8
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 7179
	Adjusted? NO		Checked by S
Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted?		Checked by

Any No response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

DHL Analytical, Inc.

Laboratory Review Checklist: Reportable Data

Project Name: Rockwool TCEQ Belton, TX	**Date:** 3/28/14
Reviewer Name: Carlos Castro	**Laboratory Work Order:** 1403158
Prep Batch Number(s): See Prep Dates Report	**Run Batch:** See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	**Chain-of-Custody (C-O-C)**					
		1) Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				R1-01
		2) Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and Quality Control (QC) Identification**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test Reports**					
		1) Were all samples prepared and analyzed within holding times?	X				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		3) Were calculations checked by a peer or supervisor?	X				
		4) Were all analyte identifications checked by a peer or supervisor?	X				
		5) Were sample detection limits reported for all analytes not detected?	X				
		6) Were all results for soil and sediment samples reported on a dry weight basis?			X		
		7) Were % moisture (or solids) reported for all soil and sediment samples?			X		
		8) Were bulk soils/solids samples for volatile analysis extracted with methanol per EPA Method 5035?			X		
		9) If required for the project, TICs reported?			X		
R4	O	**Surrogate Recovery Data**					
		1) Were surrogates added prior to extraction?			X		
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		1) Were appropriate type(s) of blanks analyzed?	X				
		2) Were blanks analyzed at the appropriate frequency?	X				
		3) Where method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		4) Were blank concentrations < MQL?	X				
R6	OI	**Laboratory Control Samples (LCS):**					
		1) Were all COCs included in the LCS?	X				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		3) Were LCSs analyzed at the required frequency?	X				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		6) Was the LCSD RPD within QC limits (if applicable)?	X				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Data**					
		1) Were the project/method specified analytes included in the MS and MSD?	X				
		2) Were MS/MSD analyzed at the appropriate frequency?	X				
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		4) Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?			X		
		2) Were analytical duplicates analyzed at the appropriate frequency?			X		
		3) Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	X				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		3) Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?			X		
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		3) Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

DHL Analytical, Inc.
Laboratory Review Checklist (continued): Supporting Data

Project Name: Rockwool TCEQ Belton, TX	**Date:** 3/28/14
Reviewer Name: Carlos Castro	**Laboratory Work Order:** 1403158

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within QC limits?	X				
		2) Were percent RSDs or correlation coefficient criteria met?	X				
		3) Was the number of standards recommended in the method used for all analytes?	X				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		5) Are ICAL data available for all instruments used?	X				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and Continuing calibration Verification (ICCV and CCV) and Continuing Calibration blank (CCB):**					
		1) Was the CCV analyzed at the method-required frequency?	X				
		2) Were percent differences for each analyte within the method-required QC limits?	X				
		3) Was the ICAL curve verified for each analyte?	X				
		4) Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	**Mass Spectral Tuning:**					
		1) Was the appropriate compound for the method used for tuning?	X				
		2) Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal Standards (IS):**					
		1) Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw Data (NELAC Section 5.5.10)**					
		1) Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		2) Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual Column Confirmation**					
		1) Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively Identified Compounds (TICs):**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) Results:**					
		1) Were percent recoveries within method QC limits?	X				
S9	I	**Serial Dilutions, Post Digestion Spikes, and Method of Standard Additions**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	**Method Detection Limit (MDL) Studies**					
		1) Was a MDL study performed for each reported analyte?	X				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency Test Reports:**					
		1) Was the lab's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards Documentation**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/Analyte Identification Procedures**					
		1) Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5 – Appendix C?	X				
		2) Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/Validation Documentation for Methods** (NELAC Chapter 5)					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory Standard Operating Procedures (SOPs):**					
		1) Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Data Package Signature Page – RG-366/TRRP-13

This data package consists of:

This signature page, the laboratory review checklist, and the following reportable data:

- R1 Field chain-of-custody documentation;
- R2 Sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5,
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- R4 Surrogate recovery data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - c) The laboratory's LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a) The amount of analyte measured in the duplicate,
  - b) The calculated RPD, and
  - c) The laboratory's QC limits for analytical duplicates.
- R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;
- R10 Other problems or anomalies.

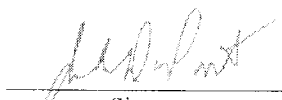
The Exception Report for every "No" or "Not Reviewed (NR)" item in Laboratory Review checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information or data affecting the quality of the data has been knowingly withheld.

This laboratory was last inspected by TCEQ on May 6-10, 2013. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

John DuPont – General Manager

Scott Schroeder – Technical Director



Signature

03/28/14

Date

DHL Analytical, Inc. **Date:** *28-Mar-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool TCEQ Belton, TX
Lab Order: 1403158

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Method SW6020A - Metals Analysis

Exception Report R1-01

The samples were received and log-in performed on 3/20/14. A total of 24 samples were received. The samples arrived in good condition and were properly packaged.

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool TCEQ Belton, TX
Lab Order: 1403158

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1403158-01	MW-20		03/19/14 09:14 AM	3/20/2014
1403158-02	MW-11		03/19/14 10:14 AM	3/20/2014
1403158-03	MW-14		03/19/14 10:59 AM	3/20/2014
1403158-04	MW-7		03/19/14 11:56 AM	3/20/2014
1403158-05	MW-19		03/19/14 12:59 PM	3/20/2014
1403158-06	MW-24-90		03/19/14 01:30 PM	3/20/2014
1403158-07	MW-18		03/19/14 02:19 PM	3/20/2014
1403158-08	MW-27-90		03/19/14 03:10 PM	3/20/2014
1403158-09	MW-28-90		03/19/14 05:00 PM	3/20/2014
1403158-10	MW-9		03/19/14 04:26 PM	3/20/2014
1403158-11	ER-1		03/19/14 04:30 PM	3/20/2014
1403158-12	MW-22		03/19/14 09:00 AM	3/20/2014
1403158-13	MW-37-90		03/19/14 10:15 AM	3/20/2014
1403158-14	MW-38-90		03/19/14 11:30 AM	3/20/2014
1403158-15	MW-35-90		03/19/14 12:00 PM	3/20/2014
1403158-16	MW-10		03/19/14 01:00 PM	3/20/2014
1403158-17	MW-21		03/19/14 10:50 AM	3/20/2014
1403158-18	MW-30-90		03/19/14 01:20 PM	3/20/2014
1403158-19	MW-29-90		03/19/14 01:50 PM	3/20/2014
1403158-20	MW-17		03/19/14 02:30 PM	3/20/2014
1403158-21	MW-33-90		03/19/14 03:05 PM	3/20/2014
1403158-22	MW-34-90		03/19/14 03:40 PM	3/20/2014
1403158-23	DUP-1		03/19/14	3/20/2014
1403158-24	DUP-2		03/19/14	3/20/2014

Lab Order: 1403158
Client: D. B. Stephens & Assoc, Inc.
Project: Rockwool TCEQ Belton, TX

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1403158-01A	MW-20	03/19/14 09:14 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-02A	MW-11	03/19/14 10:14 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-03A	MW-14	03/19/14 10:59 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-04A	MW-7	03/19/14 11:56 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-05A	MW-19	03/19/14 12:59 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-06A	MW-24-90	03/19/14 01:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-07A	MW-18	03/19/14 02:19 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-08A	MW-27-90	03/19/14 03:10 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-09A	MW-28-90	03/19/14 05:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-10A	MW-9	03/19/14 04:26 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-11A	ER-1	03/19/14 04:30 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-12A	MW-22	03/19/14 09:00 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-13A	MW-37-90	03/19/14 10:15 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-14A	MW-38-90	03/19/14 11:30 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
	MW-38-90	03/19/14 11:30 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-15A	MW-35-90	03/19/14 12:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-16A	MW-10	03/19/14 01:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-17A	MW-21	03/19/14 10:50 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-18A	MW-30-90	03/19/14 01:20 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/18/14 10:37 AM	62377
1403158-19A	MW-29-90	03/19/14 01:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/24/14 08:20 AM	62459
1403158-20A	MW-17	03/19/14 02:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/24/14 08:20 AM	62459
1403158-21A	MW-33-90	03/19/14 03:05 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/24/14 08:20 AM	62459
1403158-22A	MW-34-90	03/19/14 03:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/24/14 08:20 AM	62459
1403158-23A	DUP-1	03/19/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/24/14 08:20 AM	62459
1403158-24A	DUP-2	03/19/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	03/24/14 08:20 AM	62459

DHL Analytical, Inc.

28-Mar-14

Lab Order: 1403158
Client: D. B. Stephens & Assoc, Inc.
Project: Rockwool TCEQ Belton, TX

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1403158-01A	MW-20	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 05:26 PM	ICP-MS2_140320B
1403158-02A	MW-11	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 05:32 PM	ICP-MS2_140320B
1403158-03A	MW-14	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 05:38 PM	ICP-MS2_140320B
1403158-04A	MW-7	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 05:15 PM	ICP-MS2_140320B
1403158-05A	MW-19	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 05:44 PM	ICP-MS2_140320B
1403158-06A	MW-24-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 05:50 PM	ICP-MS2_140320B
1403158-07A	MW-18	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 05:56 PM	ICP-MS2_140320B
1403158-08A	MW-27-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 06:02 PM	ICP-MS2_140320B
1403158-09A	MW-28-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 07:17 PM	ICP-MS2_140320B
1403158-10A	MW-9	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 07:23 PM	ICP-MS2_140320B
1403158-11A	ER-1	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 07:29 PM	ICP-MS2_140320B
1403158-12A	MW-22	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 07:35 PM	ICP-MS2_140320B
1403158-13A	MW-37-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 07:41 PM	ICP-MS2_140320B
1403158-14A	MW-38-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	5	03/20/14 06:30 PM	ICP-MS3_140320B
	MW-38-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 07:46 PM	ICP-MS2_140320B
1403158-15A	MW-35-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 07:52 PM	ICP-MS2_140320B
1403158-16A	MW-10	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 07:58 PM	ICP-MS2_140320B
1403158-17A	MW-21	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 08:04 PM	ICP-MS2_140320B
1403158-18A	MW-30-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62377	1	03/20/14 08:10 PM	ICP-MS2_140320B
1403158-19A	MW-29-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62459	1	03/25/14 04:10 AM	ICP-MS3_140324B
1403158-20A	MW-17	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62459	1	03/25/14 04:16 AM	ICP-MS3_140324B
1403158-21A	MW-33-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62459	1	03/25/14 04:22 AM	ICP-MS3_140324B
1403158-22A	MW-34-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62459	1	03/25/14 04:28 AM	ICP-MS3_140324B
1403158-23A	DUP-1	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62459	1	03/25/14 04:34 AM	ICP-MS3_140324B
1403158-24A	DUP-2	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	62459	1	03/25/14 04:41 AM	ICP-MS3_140324B

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-20
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-01
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 09:14 AM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00152	0.000800	0.00250	J	mg/L	1	03/20/14 05:26 PM
Arsenic	0.00205	0.00200	0.00500	J	mg/L	1	03/20/14 05:26 PM
Lead	0.000669	0.000300	0.00100	J	mg/L	1	03/20/14 05:26 PM
IS: Bismuth	97.4	0	70-200		%REC	1	03/20/14 05:26 PM
IS: Germanium	91.9	0	70-200		%REC	1	03/20/14 05:26 PM
IS: Indium	91.0	0	70-200		%REC	1	03/20/14 05:26 PM

NKT
4-6-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-11
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-02
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 10:14 AM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	03/20/14 05:32 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	03/20/14 05:32 PM
Lead	0.000372	0.000300	0.00100	J	mg/L	1	03/20/14 05:32 PM
IS: Bismuth	98.1	0	70-200		%REC	1	03/20/14 05:32 PM
IS: Germanium	97.3	0	70-200		%REC	1	03/20/14 05:32 PM
IS: Indium	93.5	0	70-200		%REC	1	03/20/14 05:32 PM

MK
4-6-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-14
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-03
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 10:59 AM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	03/20/14 05:38 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	03/20/14 05:38 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/20/14 05:38 PM
IS: Bismuth	102	0	70-200		%REC	1	03/20/14 05:38 PM
IS: Germanium	101	0	70-200		%REC	1	03/20/14 05:38 PM
IS: Indium	97.8	0	70-200		%REC	1	03/20/14 05:38 PM

MK 4-6-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-7
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-04
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 11:56 AM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00152	0.000800	0.00250	J	mg/L	1	03/20/14 05:15 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	03/20/14 05:15 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/20/14 05:15 PM
IS: Bismuth	103	0	70-200		%REC	1	03/20/14 05:15 PM
IS: Germanium	93.1	0	70-200		%REC	1	03/20/14 05:15 PM
IS: Indium	93.4	0	70-200		%REC	1	03/20/14 05:15 PM

NKT
4-6-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-19
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-05
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 12:59 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00122	0.000800	0.00250	J	mg/L	1	03/20/14 05:44 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	03/20/14 05:44 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/20/14 05:44 PM
IS: Bismuth	103	0	70-200		%REC	1	03/20/14 05:44 PM
IS: Germanium	106	0	70-200		%REC	1	03/20/14 05:44 PM
IS: Indium	101	0	70-200		%REC	1	03/20/14 05:44 PM

MK 4.6.14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-24-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-06
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 01:30 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0128	0.000800	0.00250		mg/L	1	03/20/14 05:50 PM
Arsenic	0.0119	0.00200	0.00500		mg/L	1	03/20/14 05:50 PM
Lead	0.000962	0.000300	0.00100	J	mg/L	1	03/20/14 05:50 PM
IS: Bismuth	97.9	0	70-200		%REC	1	03/20/14 05:50 PM
IS: Germanium	104	0	70-200		%REC	1	03/20/14 05:50 PM
IS: Indium	96.9	0	70-200		%REC	1	03/20/14 05:50 PM

MC 4-6-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-18
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-07
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 02:19 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	03/20/14 05:56 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	03/20/14 05:56 PM
Lead	0.00115	0.000300	0.00100		mg/L	1	03/20/14 05:56 PM
IS: Bismuth	92.2	0	70-200		%REC	1	03/20/14 05:56 PM
IS: Germanium	100	0	70-200		%REC	1	03/20/14 05:56 PM
IS: Indium	94.2	0	70-200		%REC	1	03/20/14 05:56 PM

4-6-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-27-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-08
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 03:10 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0562	0.000800	0.00250		mg/L	1	03/20/14 06:02 PM
Arsenic	0.00210	0.00200	0.00500	J	mg/L	1	03/20/14 06:02 PM
Lead	0.00176	0.000300	0.00100		mg/L	1	03/20/14 06:02 PM
IS: Bismuth	99.8	0	70-200		%REC	1	03/20/14 06:02 PM
IS: Germanium	110	0	70-200		%REC	1	03/20/14 06:02 PM
IS: Indium	102	0	70-200		%REC	1	03/20/14 06:02 PM

MK 4-6-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-28-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-09
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 05:00 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00586	0.000800	0.00250		mg/L	1	03/20/14 07:17 PM
Arsenic	0.0168	0.00200	0.00500		mg/L	1	03/20/14 07:17 PM
Lead	0.00112	0.000300	0.00100		mg/L	1	03/20/14 07:17 PM
IS: Bismuth	107	0	70-200		%REC	1	03/20/14 07:17 PM
IS: Germanium	115	0	70-200		%REC	1	03/20/14 07:17 PM
IS: Indium	107	0	70-200		%REC	1	03/20/14 07:17 PM

4-6-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-9
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-10
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 04:26 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.245	0.000800	0.00250		mg/L	1	03/20/14 07:23 PM
Arsenic	0.0899	0.00200	0.00500		mg/L	1	03/20/14 07:23 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/20/14 07:23 PM
IS: Bismuth	98.6	0	70-200		%REC	1	03/20/14 07:23 PM
IS: Germanium	112	0	70-200		%REC	1	03/20/14 07:23 PM
IS: Indium	101	0	70-200		%REC	1	03/20/14 07:23 PM

MK 4-6-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	ER-1
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-11
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 04:30 PM
Lab Order:	1403158	**Matrix:**	EQUIP BLANK

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	03/20/14 07:29 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	03/20/14 07:29 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/20/14 07:29 PM
IS: Bismuth	105	0	70-200		%REC	1	03/20/14 07:29 PM
IS: Germanium	113	0	70-200		%REC	1	03/20/14 07:29 PM
IS: Indium	105	0	70-200		%REC	1	03/20/14 07:29 PM

JK 4-6-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-22
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-12
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 09:00 AM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	03/20/14 07:35 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	03/20/14 07:35 PM
Lead	0.000474	0.000300	0.00100	J	mg/L	1	03/20/14 07:35 PM
IS: Bismuth	99.7	0	70-200		%REC	1	03/20/14 07:35 PM
IS: Germanium	110	0	70-200		%REC	1	03/20/14 07:35 PM
IS: Indium	102	0	70-200		%REC	1	03/20/14 07:35 PM

MC 4-6-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-37-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-13
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 10:15 AM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.000951	0.000800	0.00250	J	mg/L	1	03/20/14 07:41 PM
Arsenic	0.0213	0.00200	0.00500		mg/L	1	03/20/14 07:41 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/20/14 07:41 PM
IS: Bismuth	105	0	70-200		%REC	1	03/20/14 07:41 PM
IS: Germanium	116	0	70-200		%REC	1	03/20/14 07:41 PM
IS: Indium	109	0	70-200		%REC	1	03/20/14 07:41 PM

4.6.14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-38-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-14
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 11:30 AM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.550	0.00400	0.0125		mg/L	5	03/20/14 06:30 PM
Arsenic	0.00258	0.00200	0.00500	J	mg/L	1	03/20/14 07:46 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/20/14 07:46 PM
IS: Bismuth	104	0	70-200		%REC	1	03/20/14 07:46 PM
IS: Germanium	117	0	70-200		%REC	1	03/20/14 07:46 PM
IS: Indium	107	0	70-200		%REC	5	03/20/14 06:30 PM

MK7
4-6-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-35-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-15
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 12:00 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.166	0.000800	0.00250		mg/L	1	03/20/14 07:52 PM
Arsenic	0.0558	0.00200	0.00500		mg/L	1	03/20/14 07:52 PM
Lead	0.0479	0.000300	0.00100		mg/L J1-FD	1	03/20/14 07:52 PM
IS: Bismuth	102	0	70-200		%REC	1	03/20/14 07:52 PM
IS: Germanium	117	0	70-200		%REC	1	03/20/14 07:52 PM
IS: Indium	107	0	70-200		%REC	1	03/20/14 07:52 PM

MK 4-6-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-10
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-16
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 01:00 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	03/20/14 07:58 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	03/20/14 07:58 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/20/14 07:58 PM
IS: Bismuth	106	0	70-200		%REC	1	03/20/14 07:58 PM
IS: Germanium	121	0	70-200		%REC	1	03/20/14 07:58 PM
IS: Indium	110	0	70-200		%REC	1	03/20/14 07:58 PM

MKT 4-6-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-21
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-17
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 10:50 AM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.211	0.000800	0.00250		mg/L	1	03/20/14 08:04 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	03/20/14 08:04 PM
Lead	0.000322	0.000300	0.00100	J	mg/L	1	03/20/14 08:04 PM
IS: Bismuth	112	0	70-200		%REC	1	03/20/14 08:04 PM
IS: Germanium	126	0	70-200		%REC	1	03/20/14 08:04 PM
IS: Indium	115	0	70-200		%REC	1	03/20/14 08:04 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-30-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-18
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 01:20 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00146	0.000800	0.00250	J	mg/L	1	03/20/14 08:10 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	03/20/14 08:10 PM
Lead	0.00380	0.000300	0.00100		mg/L	1	03/20/14 08:10 PM
IS: Bismuth	106	0	70-200		%REC	1	03/20/14 08:10 PM
IS: Germanium	123	0	70-200		%REC	1	03/20/14 08:10 PM
IS: Indium	111	0	70-200		%REC	1	03/20/14 08:10 PM

MLT 4-6-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-29-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-19
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 01:50 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0254	0.000800	0.00250		mg/L	1	03/25/14 04:10 AM
Arsenic	0.00514	0.00200	0.00500		mg/L	1	03/25/14 04:10 AM
Lead	0.00359	0.000300	0.00100		mg/L	1	03/25/14 04:10 AM
IS: Bismuth	78.9	0	70-200		%REC	1	03/25/14 04:10 AM
IS: Germanium	72.5	0	70-200		%REC	1	03/25/14 04:10 AM
IS: Indium	79.3	0	70-200		%REC	1	03/25/14 04:10 AM

MK 4-16-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-17
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-20
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 02:30 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0490	0.000800	0.00250		mg/L	1	03/25/14 04:16 AM
Arsenic	0.0149	0.00200	0.00500		mg/L	1	03/25/14 04:16 AM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/25/14 04:16 AM
IS: Bismuth	83.3	0	70-200		%REC	1	03/25/14 04:16 AM
IS: Germanium	76.9	0	70-200		%REC	1	03/25/14 04:16 AM
IS: Indium	83.6	0	70-200		%REC	1	03/25/14 04:16 AM

7167
4-6-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-33-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-21
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 03:05 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.131	0.000800	0.00250		mg/L	1	03/25/14 04:22 AM
Arsenic	0.0387	0.00200	0.00500		mg/L	1	03/25/14 04:22 AM
Lead	<0.000300	0.000300	0.00100		mg/L	1	03/25/14 04:22 AM
IS: Bismuth	82.2	0	70-200		%REC	1	03/25/14 04:22 AM
IS: Germanium	79.7	0	70-200		%REC	1	03/25/14 04:22 AM
IS: Indium	82.0	0	70-200		%REC	1	03/25/14 04:22 AM

MK 4-6-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte cetected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	DUP-1
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-23
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.149	0.000800	0.00250		mg/L	1	03/25/14 04:34 AM
Arsenic	0.0446	0.00200	0.00500		mg/L	1	03/25/14 04:34 AM
Lead	0.0268	0.000300	0.00100	J1-FD	mg/L	1	03/25/14 04:34 AM
IS: Bismuth	76.2	0	70-200		%REC	1	03/25/14 04:34 AM
IS: Germanium	73.0	0	70-200		%REC	1	03/25/14 04:34 AM
IS: Indium	76.4	0	70-200		%REC	1	03/25/14 04:34 AM

mc 4-6-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-34-90
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-22
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14 03:40 PM
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.305	0.000800	0.00250		mg/L	1	03/25/14 04:28 AM
Arsenic	0.447	0.00200	0.00500		mg/L	1	03/25/14 04:28 AM
Lead	0.000894	0.000300	0.00100	J	mg/L	1	03/25/14 04:28 AM
IS: Bismuth	81.5	0	70-200		%REC	1	03/25/14 04:28 AM
IS: Germanium	78.5	0	70-200		%REC	1	03/25/14 04:28 AM
IS: Indium	81.9	0	70-200		%REC	1	03/25/14 04:28 AM

MC 4-6-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	DUP-2
Project:	Rockwool TCEQ Belton, TX	**Lab ID:**	1403158-24
Project No:	ES14.AIR0.12	**Collection Date:**	03/19/14
Lab Order:	1403158	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.316	0.000800	0.00250		mg/L	1	03/25/14 04:41 AM
Arsenic	0.463	0.00200	0.00500		mg/L	1	03/25/14 04:41 AM
Lead	0.00114	0.000300	0.00100		mg/L	1	03/25/14 04:41 AM
IS: Bismuth	79.7	0	70-200		%REC	1	03/25/14 04:41 AM
IS: Germanium	76.5	0	70-200		%REC	1	03/25/14 04:41 AM
IS: Indium	79.4	0	70-200		%REC	1	03/25/14 04:41 AM

MC 4-6-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1403158
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS2_131227A

Sample ID	DCS-58199-1	Batch ID:	58199	TestNo:	SW6020A	Units:	mg/L
SampType:	DCS	Run ID:	ICP-MS2_131227A	Analysis Date:	12/27/2013 12:33:00 P	Prep Date:	7/2/2013

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.000924	0.00250	0.00100	0	92.4	80	120	0	0	
Arsenic	0.000914	0.00500	0.00100	0	91.4	80	120	0	0	
Lead	0.00102	0.00100	0.00100	0	102	80	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1403158
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS2_140320B

The QC data in batch 62377 applies to the following samples: 1403158-01A, 1403158-02A, 1403158-03A, 1403158-04A, 1403158-05A, 1403158-06A, 1403158-07A, 1403158-08A, 1403158-09A, 1403158-10A, 1403158-11A, 1403158-12A, 1403158-13A, 1403158-14A, 1403158-15A, 1403158-16A, 1403158-17A, 1403158-18A

Sample ID **MB-62377** Batch ID: **62377** TestNo: **SW6020A** Units: **mg/L**
SampType: **MBLK** Run ID: **ICP-MS2_140320B** Analysis Date: **3/20/2014 4:39:00 PM** Prep Date: **3/18/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Lead	<0.000300	0.00100								
IS: Bismuth	0.200		0.200		107	70	200			

Sample ID **LCS-62377** Batch ID: **62377** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCS** Run ID: **ICP-MS2_140320B** Analysis Date: **3/20/2014 4:45:00 PM** Prep Date: **3/18/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.191	0.00250	0.200	0	95.6	80	120			
Arsenic	0.193	0.00500	0.200	0	96.7	80	120			
Lead	0.192	0.00100	0.200	0	96.2	80	120			
IS: Bismuth	0.200		0.200		105	70	200			

Sample ID **LCSD-62377** Batch ID: **62377** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS2_140320B** Analysis Date: **3/20/2014 4:51:00 PM** Prep Date: **3/18/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.185	0.00250	0.200	0	92.6	80	120	3.19	15	
Arsenic	0.186	0.00500	0.200	0	93.1	80	120	3.79	15	
Lead	0.188	0.00100	0.200	0	94.2	80	120	2.05	15	
IS: Bismuth	0.200		0.200		107	70	200	0	0	

Sample ID **1403158-04A SD** Batch ID: **62377** TestNo: **SW6020A** Units: **mg/L**
SampType: **SD** Run ID: **ICP-MS2_140320B** Analysis Date: **3/20/2014 5:21:00 PM** Prep Date: **3/18/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.00400	0.0125	0	0.00152				0	10	
Arsenic	<0.0100	0.0250	0	0				0	10	
Lead	<0.00150	0.00500	0	0				0	10	
IS: Bismuth	1.00		0.200		105	70	200	0	0	

Sample ID **1403158-04A PDS** Batch ID: **62377** TestNo: **SW6020A** Units: **mg/L**
SampType: **PDS** Run ID: **ICP-MS2_140320B** Analysis Date: **3/20/2014 6:07:00 PM** Prep Date: **3/18/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.180	0.00250	0.200	0.00152	89.0	80	120			
Arsenic	0.179	0.00500	0.200	0	89.4	80	120			
Lead	0.184	0.00100	0.200	0	92.2	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank
J	Analyte detected between MDL and RL
ND	Not Detected at the Method Detection Limit
RL	Reporting Limit
J	Analyte detected between SDL and RL
DF	Dilution Factor
MDL	Method Detection Limit
R	RPD outside accepted control limits
S	Spike Recovery outside control limits
N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1403158
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS2_140320B

Sample ID	1403158-04A PDS	Batch ID:	62377	TestNo:	SW6020A	Units:	mg/L
SampType:	PDS	Run ID:	ICP-MS2_140320B	Analysis Date:	3/20/2014 6:07:00 PM	Prep Date:	3/18/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
IS: Bismuth	0.200		0.200		103	70	200			

Sample ID	1403158-04A MS	Batch ID:	62377	TestNo:	SW6020A	Units:	mg/L
SampType:	MS	Run ID:	ICP-MS2_140320B	Analysis Date:	3/20/2014 6:13:00 PM	Prep Date:	3/18/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.191	0.00250	0.200	0.00152	94.9	80	120			
Arsenic	0.194	0.00500	0.200	0	97.2	80	120			
Lead	0.196	0.00100	0.200	0	98.0	80	120			
IS: Bismuth	0.200		0.200		102	70	200			

Sample ID	1403158-04A MSD	Batch ID:	62377	TestNo:	SW6020A	Units:	mg/L
SampType:	MSD	Run ID:	ICP-MS2_140320B	Analysis Date:	3/20/2014 6:19:00 PM	Prep Date:	3/18/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.193	0.00250	0.200	0.00152	95.6	80	120	0.729	15	
Arsenic	0.196	0.00500	0.200	0	98.1	80	120	0.922	15	
Lead	0.195	0.00100	0.200	0	97.6	80	120	0.409	15	
IS: Bismuth	0.200		0.200		101	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1403158
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS2_140320B

Sample ID **ICV1-140320** Batch ID: **R71873** TestNo: **SW6020A** Units: **mg/L**
SampType: **ICV** Run ID: **ICP-MS2_140320B** Analysis Date: **3/20/2014 1:49:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0948	0.00250	0.100	0	94.8	90	110			
Arsenic	0.0971	0.00500	0.100	0	97.1	90	110			
Lead	0.0970	0.00100	0.100	0	97.0	90	110			
IS: Bismuth	0.200		0.200		103	70	200			

Sample ID **ILCVL-140320** Batch ID: **R71873** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS2_140320B** Analysis Date: **3/20/2014 2:07:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00185	0.00250	0.00200	0	92.6	70	130			
Arsenic	0.00459	0.00500	0.00500	0	91.8	70	130			
Lead	0.000953	0.00100	0.00100	0	95.3	70	130			
IS: Bismuth	0.200		0.200		104	70	200			

Sample ID **CCV1-140320** Batch ID: **R71873** TestNo: **SW6020A** Units: **mg/L**
SampType: **CCV** Run ID **ICP-MS2_140320B** Analysis Date: **3/20/2014 3:28:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.207	0.00250	0.200	0	103	90	110			
Arsenic	0.203	0.00500	0.200	0	102	90	110			
Lead	0.206	0.00100	0.200	0	103	90	110			
IS: Bismuth	0.200		0.200		103	70	200			

Sample ID **LCVL1-140320** Batch ID: **R71873** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS2_140320B** Analysis Date: **3/20/2014 3:58:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00205	0.00250	0.00200	0	102	70	130			
Arsenic	0.00455	0.00500	0.00500	0	90.9	70	130			
Lead	0.000939	0.00100	0.00100	0	93.9	70	130			
IS: Bismuth	0.200		0.200		109	70	200			

Sample ID **CCV2-140320** Batch ID: **R71873** TestNo: **SW6020A** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS2_140320B** Analysis Date: **3/20/2014 6:25:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.203	0.00250	0.200	0	102	90	110			
Arsenic	0.202	0.00500	0.200	0	101	90	110			
Lead	0.205	0.00100	0.200	0	102	90	110			
IS: Bismuth	0.200		0.200		105	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank
J	Analyte detected between MDL and RL
ND	Not Detected at the Method Detection Limit
RL	Reporting Limit
J	Analyte detected between SDL and RL
DF	Dilution Factor
MDL	Method Detection Limit
R	RPD outside accepted control limits
S	Spike Recovery outside control limits
N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1403158
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS2_140320B

Sample ID **LCVL2-140320**	Batch ID: **R71873**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS2_140320B**	Analysis Date: **3/20/2014 6:59:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00203	0.00250	0.00200	0	101	70	130			
Arsenic	0.00448	0.00500	0.00500	0	89.5	70	130			
Lead	0.000966	0.00100	0.00100	0	96.6	70	130			
IS: Bismuth	0.200		0.200		108	70	200			

Sample ID **CCV3-140320**	Batch ID: **R71873**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS2_140320B**	Analysis Date: **3/20/2014 8:15:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.202	0.00250	0.200	0	101	90	110			
Arsenic	0.199	0.00500	0.200	0	99.4	90	110			
Lead	0.202	0.00100	0.200	0	101	90	110			
IS: Bismuth	0.200		0.200		108	70	200			
IS: Germanium	0.200		0.200		121	70	200			
IS: Indium	0.200		0.200		111	70	200			

Sample ID **LCVL3-140320**	Batch ID: **R71873**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS2_140320B**	Analysis Date: **3/20/2014 8:50:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00199	0.00250	0.00200	0	99.2	70	130			
Arsenic	0.00450	0.00500	0.00500	0	90.0	70	130			
Lead	0.000936	0.00100	0.00100	0	93.6	70	130			
IS: Bismuth	0.200		0.200		111	70	200			
IS: Germanium	0.200		0.200		125	70	200			
IS: Indium	0.200		0.200		115	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1403158
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140203A

Sample ID **DCS-61631-1** Batch ID: **61631** TestNo: **SW6020A** Units: **mg/L**
SampType: **DCS** Run ID: **ICP-MS3_140203A** Analysis Date: **2/3/2014 4:01:00 PM** Prep Date: **2/3/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.000923	0.00250	0.00100	0	92.3	65	135	0	0	
Arsenic	0.000942	0.00500	0.00100	0	94.2	65	135	0	0	
Lead	0.00104	0.00100	0.00100	0	104	65	135	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank
J	Analyte detected between MDL and RL
ND	Not Detected at the Method Detection Limit
RL	Reporting Limit
J	Analyte detected between SDL and RL
DF	Dilution Factor
MDL	Method Detection Limit
R	RPD outside accepted control limits
S	Spike Recovery outside control limits
N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1403158
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140320B

Sample ID **ICV1-140320**	Batch ID: **R71877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_140320B**	Analysis Date: **3/20/2014 12:05:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0958	0.00250	0.100	0	95.8	90	110			
IS: Indium	0.200		0.200		98.7	70	200			

Sample ID **ILCVL-140320**	Batch ID: **R71877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140320B**	Analysis Date: **3/20/2014 12:24:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00208	0.00250	0.00200	0	104	70	130			
IS: Indium	0.200		0.200		100	70	200			

Sample ID **CCV2-140320**	Batch ID: **R71877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_140320B**	Analysis Date: **3/20/2014 5:00:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.202	0.00250	0.200	0	101	90	110			
IS: Indium	0.200		0.200		99.8	70	200			

Sample ID **LCVL2-140320**	Batch ID: **R71877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140320B**	Analysis Date: **3/20/2014 5:24:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00231	0.00250	0.00200	0	115	70	130			
IS: Indium	0.200		0.200		99.9	70	200			

Sample ID **CCV3-140320**	Batch ID: **R71877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_140320B**	Analysis Date: **3/20/2014 6:42:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.199	0.00250	0.200	0	99.4	90	110			
IS: Indium	0.200		0.200		104	70	200			

Sample ID **LCVL3-140320**	Batch ID: **R71877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140320B**	Analysis Date: **3/20/2014 7:18:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00216	0.00250	0.00200	0	108	70	130			
IS: Indium	0.200		0.200		106	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1403158
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140324B

The QC data in batch 62459 applies to the following samples: 1403158-19A, 1403158-20A, 1403158-21A, 1403158-22A, 1403158-23A, 1403158-24A

Sample ID **MB-62459** Batch ID: **62459** TestNo: **SW6020A** Units: **mg/L**
SampType: **MBLK** Run ID: **ICP-MS3_140324B** Analysis Date: **3/25/2014 2:52:00 AM** Prep Date: **3/24/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Lead	<0.000300	0.00100								
IS: Bismuth	0.200		0.200		86.1	70	200			

Sample ID **LCS-62459** Batch ID: **62459** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCS** Run ID: **ICP-MS3_140324B** Analysis Date: **3/25/2014 2:58:00 AM** Prep Date: **3/24/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.196	0.00250	0.200	0	98.1	80	120			
Arsenic	0.205	0.00500	0.200	0	103	80	120			
Lead	0.196	0.00100	0.200	0	97.8	80	120			
IS: Bismuth	0.200		0.200		83.9	70	200			

Sample ID **LCSD-62459** Batch ID: **62459** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCSD** Run ID **ICP-MS3_140324B** Analysis Date: **3/25/2014 3:04:00 AM** Prep Date: **3/24/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.194	0.00250	0.200	0	97.0	80	120	1.13	15	
Arsenic	0.204	0.00500	0.200	0	102	80	120	0.733	15	
Lead	0.194	0.00100	0.200	0	97.2	80	120	0.615	15	
IS: Bismuth	0.200		0.200		84.0	70	200	0	0	

Sample ID **1403188-01A SD** Batch ID: **62459** TestNo: **SW6020A** Units: **mg/L**
SampType: **SD** Run ID: **ICP-MS3_140324B** Analysis Date: **3/25/2014 3:46:00 AM** Prep Date: **3/24/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.00400	0.0125	0	0				0	10	
Arsenic	<0.0100	0.0250	0	0				0	10	
Lead	<0.00150	0.00500	0	0				0	10	
IS: Bismuth	1.00		0.200		86.5	70	200	0	0	

Sample ID **1403188-01A PDS** Batch ID: **62459** TestNo: **SW6020A** Units: **mg/L**
SampType: **PDS** Run ID: **ICP-MS3_140324B** Analysis Date: **3/25/2014 4:47:00 AM** Prep Date: **3/24/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.170	0.00250	0.200	0	85.2	80	120			
Arsenic	0.198	0.00500	0.200	0	98.8	80	120			
Lead	0.188	0.00100	0.200	0	93.8	80	120			
IS: Bismuth	0.200		0.200		83.3	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank
J	Analyte detected between MDL and RL
ND	Not Detected at the Method Detection Limit
RL	Reporting Limit
J	Analyte detected between SDL and RL
DF	Dilution Factor
MDL	Method Detection Limit
R	RPD outside accepted control limits
S	Spike Recovery outside control limits
N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1403158
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140324B

Sample ID 1403188-01A MS	Batch ID: 62459	TestNo: SW6020A	Units: mg/L
SampType: MS	Run ID: ICP-MS3_140324B	Analysis Date: 3/25/2014 4:53:00 AM	Prep Date: 3/24/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.196	0.00250	0.200	0	98.2	80	120			
Arsenic	0.206	0.00500	0.200	0	103	80	120			
Lead	0.194	0.00100	0.200	0	97.1	80	120			
IS: Bismuth	0.200		0.200		81.1	70	200			

Sample ID 1403188-01A MSD	Batch ID: 62459	TestNo: SW6020A	Units: mg/L
SampType: MSD	Run ID: ICP-MS3_140324B	Analysis Date: 3/25/2014 4:59:00 AM	Prep Date: 3/24/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.195	0.00250	0.200	0	97.6	80	120	0.511	15	
Arsenic	0.207	0.00500	0.200	0	103	80	120	0.437	15	
Lead	0.194	0.00100	0.200	0	97.2	80	120	0.103	15	
IS: Bismuth	0.200		0.200		81.8	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1403158
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140324B

Sample ID **ICV1-140324** Batch ID: **R71919** TestNo: **SW6020A** Units: **mg/L**
SampType: **ICV** Run ID: **ICP-MS3_140324B** Analysis Date: **3/24/2014 3:24:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0946	0.00250	0.100	0	94.6	90	110			
Arsenic	0.0995	0.00500	0.100	0	99.5	90	110			
Lead	0.100	0.00100	0.100	0	100	90	110			
IS: Bismuth	0.200		0.200		99.5	70	200			

Sample ID **ILCVL-140324** Batch ID: **R71919** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS3_140324B** Analysis Date: **3/24/2014 3:36:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00167	0.00250	0.00200	0	83.6	70	130			
Arsenic	0.00479	0.00500	0.00500	0	95.8	70	130			
Lead	0.000960	0.00100	0.00100	0	96.0	70	130			
IS: Bismuth	0.200		0.200		101	70	200			

Sample ID **CCV5-140324** Batch ID: **R71919** TestNo: **SW6020A** Units: **mg/L**
SampType: **CCV** Run ID **ICP-MS3_140324B** Analysis Date: **3/25/2014 2:09:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.206	0.00250	0.200	0	103	90	110			
Arsenic	0.207	0.00500	0.200	0	104	90	110			
Lead	0.200	0.00100	0.200	0	100	90	110			
IS: Bismuth	0.200		0.200		82.0	70	200			

Sample ID **LCVL5-140324** Batch ID: **R71919** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS3_140324B** Analysis Date: **3/25/2014 2:33:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00184	0.00250	0.00200	0	92.0	70	130			
Arsenic	0.00491	0.00500	0.00500	0	98.2	70	130			
Lead	0.000923	0.00100	0.00100	0	92.3	70	130			
IS: Bismuth	0.200		0.200		85.1	70	200			

Sample ID **CCV6-140324** Batch ID: **R71919** TestNo: **SW6020A** Units: **mg/L**
SampType: **CCV** Run ID: **ICP-MS3_140324B** Analysis Date: **3/25/2014 5:05:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.198	0.00250	0.200	0	99.2	90	110			
Arsenic	0.208	0.00500	0.200	0	104	90	110			
Lead	0.199	0.00100	0.200	0	99.6	90	110			
IS: Bismuth	0.200		0.200		79.6	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1403158
Project: Rockwool TCEQ Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140324B

Sample ID **LCVL6-140324** Batch ID: **R71919** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS3_140324B** Analysis Date: **3/25/2014 5:41:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00183	0.00250	0.00200	0	91.4	70	130			
Arsenic	0.00497	0.00500	0.00500	0	99.4	70	130			
Lead	0.000925	0.00100	0.00100	0	92.5	70	130			
IS: Bismuth	0.200		0.200		82.3	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

DHL Analytical, Inc.

Date: *28-Mar-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1403158
Project: Rockwool TCEQ Belton, TX

MQL SUMMARY REPORT

TestNo: SW6020A	MDL	MQL
Analyte	**mg/L**	**mg/L**
Antimony	0.000800	0.00250
Arsenic	0 00200	0.00500
Lead	0.000300	0.00100

Qualifiers: MQL -Method Quantitation Limit as defined by TRRP
MDL -Method Detection Limit as defined by TRRP

ICP-MS2
For

DHL Work Order
1403158

ICP-MS2_140320B
For

DHL Work Order
1403158

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS2_140320B SOP: Metals-ICP-MS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			x
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			x
P/A Factor	Before ICAL	Increasing trend	X			
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			x
ICSAB (N/A for Method 200.8)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLS and ICSA/ICSAB is N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			x
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%	X			
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%			X	
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%	X			
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)	X			
Dilution Test (SD) - RPD	Every Batch	10	X			
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)	X			

Lab Data Review Check List

EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			X
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> 5% of highest standard	X			
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality			X	X
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

TECHNICAL DIRECTOR / QA MANAGER APPROVAL SIGNATURE AND DATE STAMP:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> MDL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag data / Case narrative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

See notes in Run Log

Analyst: [signature] Date of Completion: 3/21/2014

Second-Level Review: [signature] Reviewer Date Stamp:

REVIEWED
By Evelyn Ferrero at 2:30:51 PM, 3/24/2014

DHL Analytical, Inc.

Run ID: **ICP-MS2_140320B** **Run No.:** 71873

Analytical Run Date: 3/20/2014 **InstrumentID:** ICP-MS2

Analyst: Sara Wieland

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TW	CAL	R71873	3/20/2014 12:27:00 PM		
1 & 20ppb std 2	1	ICPMS_TW	CAL	R71873	3/20/2014 12:33:00 PM		
10 & 200ppb std 3	1	ICPMS_TW	CAL	R71873	3/20/2014 12:39:00 PM		
50 & 1000 std 4	1	ICPMS_TW	CAL	R71873	3/20/2014 12:45:00 PM		
100 & 2000 std 5	1	ICPMS_TW	CAL	R71873	3/20/2014 12:51:00 PM		
250 & 5000ppb std 6	1	ICPMS_TW	CAL	R71873	3/20/2014 12:57:00 PM		
500 & 10000ppb std 7	1	ICPMS_TW	CAL	R71873	3/20/2014 1:02:00 PM		
2000 ppb std 8	1	ICPMS_TW	CAL	R71873	3/20/2014 1:08:00 PM		
ICSA-140320	1	ICPMS_TW	ICSA	R71873	3/20/2014 1:25:00 PM		
ICSAB-140320	1	ICPMS_TW	ICSB	R71873	3/20/2014 1:31:00 PM		
ICV1-140320	1	6020A_W	ICV	R71873	3/20/2014 1:49:00 PM		
ILCVL-140320	1	6020A_W	LCVL	R71873	3/20/2014 2:07:00 PM		
ICB1-140320	1	6020A_W	ICB	R71873	3/20/2014 2:12:00 PM		
CCV1-140320	1	6020A_W	CCV	R71873	3/20/2014 3:28:00 PM		
LCVL1-140320	1	6020A_W	LCVL	R71873	3/20/2014 3:58:00 PM		
CCB1-140320	1	6020A_W	CCB	R71873	3/20/2014 4:15:00 PM		
MB-62377	1	6020A_W	MBLK	62377	3/20/2014 4:39:00 PM		
LCS-62377	1	6020A_W	LCS	62377	3/20/2014 4:45:00 PM		
LCSD-62377	1	6020A_W	LCSD	62377	3/20/2014 4:51:00 PM		
1403121-02D	1	6020A_W	SAMP	62377	3/20/2014 5:03:00 PM		
1403121-15D	1	6020A_W	SAMP	62377	3/20/2014 5:09:00 PM		
1403158-04A	1	6020A_W	SAMP	62377	3/20/2014 5:15:00 PM		
1403158-04A SD	5	6020A_W	SD	62377	3/20/2014 5:21:00 PM		
1403158-01A	1	6020A_W	SAMP	62377	3/20/2014 5:26:00 PM		
1403158-02A	1	6020A_W	SAMP	62377	3/20/2014 5:32:00 PM		
1403158-03A	1	6020A_W	SAMP	62377	3/20/2014 5:38:00 PM		
1403158-05A	1	6020A_W	SAMP	62377	3/20/2014 5:44:00 PM		
1403158-06A	1	6020A_W	SAMP	62377	3/20/2014 5:50:00 PM		
1403158-07A	1	6020A_W	SAMP	62377	3/20/2014 5:56:00 PM		
1403158-08A	1	6020A_W	SAMP	62377	3/20/2014 6:02:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140317	ICPMS CCV 200/5000 PPB		06/15/2014
MET-H2CAL-1403	ICPMS High Cal2 2000ppb std 8		06/15/2014
MET-HCAL-14031	ICPMS High Cal 500ppb/10ppm s		06/15/2014
MET-ICV-140130	ICPMS ICV 100 ppb		04/30/2014
MET-IS-140130	INTERNAL STANDARD 1 PPM		04/30/2014
MET-L2CAL-14031	ICPMS Low Cal2 1/20ppb std 2		06/15/2014
MET-LCAL-140317	ICPMS Low Cal 10/200ppb std 3		06/15/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		06/15/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		06/15/2014
MET-MCAL-14031	ICPMS Mid Cal 250/5000ppb std		06/15/2014
MET-PA-130501	ICPMS PA FACTOR SOLUTION		05/01/2014
MET-PDS-140307	250 PPM Naturals+Al+Fe PDS		06/05/2014
MET-PDS-140311-	10 PPM CUSTOM PDS SOLUTI		06/09/2014
MET-PDS-140311-	10 PPM Ag+Sb PDS		06/09/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		05/11/2014

DHL Analytical, Inc.

Run ID: ICP-MS2_140320B **Run No.:** 71873

1403158-04A PDS	1	6020A_W	PDS	62377	3/20/2014 6:07:00 PM		
1403158-04A MS	1	6020A_W	MS	62377	3/20/2014 6:13:00 PM		
1403158-04A MSD	1	6020A_W	MSD	62377	3/20/2014 6:19:00 PM		
CCV2-140320	1	6020A_W	CCV	R71873	3/20/2014 6:25:00 PM		
LCVL2-140320	1	6020A_W	LCVL	R71873	3/20/2014 6:59:00 PM		
CCB2-140320	1	6020A_W	CCB	R71873	3/20/2014 7:11:00 PM		
1403158-09A	1	6020A_W	SAMP	62377	3/20/2014 7:17:00 PM		
1403158-10A	1	6020A_W	SAMP	62377	3/20/2014 7:23:00 PM		
1403158-11A	1	6020A_W	SAMP	62377	3/20/2014 7:29:00 PM		
1403158-12A	1	6020A_W	SAMP	62377	3/20/2014 7:35:00 PM		
1403158-13A	1	6020A_W	SAMP	62377	3/20/2014 7:41:00 PM		
1403158-14A	1	6020A_W	SAMP	62377	3/20/2014 7:46:00 PM		
1403158-15A	1	6020A_W	SAMP	62377	3/20/2014 7:52:00 PM		
1403158-16A	1	6020A_W	SAMP	62377	3/20/2014 7:58:00 PM		
1403158-17A	1	6020A_W	SAMP	62377	3/20/2014 8:04:00 PM		
1403158-18A	1	6020A_W	SAMP	62377	3/20/2014 8:10:00 PM		
CCV3-140320	1	6020A_W	CCV	R71873	3/20/2014 8:15:00 PM		
LCVL3-140320	1	6020A_W	LCVL	R71873	3/20/2014 8:50:00 PM		
CCB3-140320	1	6020A_W	CCB	R71873	3/20/2014 9:02:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140317	ICPMS CCV 200/5000 PPB		06/15/2014
MET-H2CAL-1403	ICPMS High Cal2 2000ppb std 8		06/15/2014
MET-HCAL-14031	ICPMS High Cal 500ppb/10ppm s		06/15/2014
MET-ICV-140130	ICPMS ICV 100 ppb		04/30/2014
MET-IS-140130	INTERNAL STANDARD 1 PPM		04/30/2014
MET-L2CAL-14031	ICPMS Low Cal2 1/20ppb std 2		06/15/2014
MET-LCAL-140317	ICPMS Low Cal 10/200ppb std 3		06/15/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		06/15/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		06/15/2014
MET-MCAL-14031	ICPMS Mid Cal 250/5000ppb std		06/15/2014
MET-PA-130501	ICPMS PA FACTOR SOLUTION		05/01/2014
MET-PDS-140307	250 PPM Naturals+Al+Fe PDS		06/05/2014
MET-PDS-140311-	10 PPM CUSTOM PDS SOLUTI		06/09/2014
MET-PDS-140311-	10 PPM Ag+Sb PDS		06/09/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		05/11/2014

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		CALBEG	Start of CALIB						
2	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
3	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
4	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
5	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
6	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
7	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
8	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
9	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CalStd	2102		1 & 20ppb std 2	CAL ICPMS_TW	Level 2				
10	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CalStd	2103		10 & 200ppb std 3	CAL ICPMS_TW	Level 3				
11	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CalStd	2104		50 & 1000 std 4	CAL ICPMS_TW	Level 4				
12	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CalStd	2105		100 & 2000 std 5	CAL ICPMS_TW	Level 5				
13	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CalStd	2106		250 & 5000ppb std 6	CAL ICPMS_TW	Level 6				
14	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CalStd	2107		500 & 10000ppb std 7	CAL ICPMS_TW	Level 7				
15	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CalStd	2108		2000 ppb std 8	CAL ICPMS_TW	Level 8				
16	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
17	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
18		Keyword		CALEND	End of CALIB						
19		Keyword		ICSBEG	Start of ICS						
20	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	ICS-A	2109		ICSA-140320	ICSAICPMS_TW	1.000				
21	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	ICS-AB	2110		ICSAB-140320	ICSBICPMS_TW	1.000				
22	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
23	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1104		RINSE	CCB ICPMS_TW	1.000				
24		Keyword		ICSEND	End of ICS						
25		Keyword		SMPLBEG	Start of SMPL						
26	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	ICV	2111		ICV1-140320	ICV ICPMS_TW	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	ICB	2101		ICB1-140320	ICB ICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	LCVL5	2512		ILCVL-140320	LCVL6020A_W	1.000				
29	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	LCVL5	2511		ILCVL-140320	LCVL6020A_W	1.000				
30	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	ICB	1105		ICB1-140320	ICB ICPMS_TW	1.000				
31	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	PB W	2201		MB-62398	MBLKSPLP_MET	1.000				
32	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	PB W	2202		MB-62391 SPLP	MBLKSPLP_MET	1.000				
33	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	LCS W	2203		LCS-62398	LCS SPLP_MET	1.000				
34	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	LCS W	2204		LCSD-62398	LCSDSPLP_MET	1.000				
35	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
36	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	AllRef	2205		1403103-01A	SAMPSPLP_MET	1.000				
37	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	DT	2206		1403103-01A SD	SD SPLP_MET	5.000				
38	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	SampleW	2207		1403103-02A	SAMPSPLP_MET	1.000				
39	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	SampleW	2208		1403147-01A	SAMPSPLP_MET	1.000				
40	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	PDS	2209		1403103-01A PDS	PDS SPLP_MET	1.000				
41	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	MS_W	2210		1403103-01A MS	MS SPLP_MET	1.000				
42	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	MS_W	2211		1403103-01A MSD	MSD SPLP_MET	1.000				
43	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCV1	1307		CCV1-140320	CCV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
44	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCV1	2112		CCV1-140320	CCV ICPMS_TW	1.000				
45	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1102		CCB1-140320	CCB ICPMS_TW	1.000				
46	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1103		CCB1-140320	CCB ICPMS_TW	1.000				
47	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	LCVL5	2511		LCVL1-140320	LCVL6020A_W	1.000				
48	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	LCVL5	2512		LCVL1-140320	LCVL6020A_W	1.000				
49	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1106		RINSE	CCB ICPMS_TW	1.000				
50	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1104		CCB1-140320	CCB ICPMS_TW	1.000				
51	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1105		CCB1-140320	CCB ICPMS_TW	1.000				
52	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	PB W	2301		MB-62377	MBLK6020A_W	1.000				
53	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	LCS W	2302		LCS-62377	LCS 6020A_W	1.000				
54	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	LCS W	2303		LCSD-62377	LCSD6020A_W	1.000				
55	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
56	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	SampleW	2306		1403121-02D	SAMP6020A_W	1.000				
57	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	SampleW	2307		1403121-15D	SAMP6020A_W	1.000				
58	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	AllRef	2304		1403158-04A	SAMP6020A_W	1.000				
59	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	DT	2305		1403158-04A SD	SD_6020A_W	5.000				
60	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	SampleW	2308		1403158-01A	SAMP6020A_W	1.000				
61	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	SampleW	2309		1403158-02A	SAMP6020A_W	1.000				
62	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	SampleW	2310		1403158-03A	SAMP6020A_W	1.000				
63	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	SampleW	2311		1403158-05A	SAMP6020A_W	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
64	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	SampleW	2312		1403158-06A	SAMP6020A_W	1.000				
65	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	SampleW	2401		1403158-07A	SAMP6020A_W	1.000				
66	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	SampleW	2402		1403158-08A	SAMP6020A_W	1.000				
67	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	PDS	2403		1403158-04A PDS	PDS 6020A_W	1.000				
68	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	MS_W	2404		1403158-04A MS	MS_6020A_W	1.000				
69	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	MS_W	2405		1403158-04A MSD	MSD 6020A_W	1.000				
70	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCV1	1307		CCV2-140320	CCV ICPMS_TW	1.000				
71	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCV1	2112		CCV2-140320	CCV ICPMS_TW	1.000				
72	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCV1	1306		CCV2-140320	CCV ICPMS_TW	1.000				
73	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1103		CCB2-140320	CCB ICPMS_TW	1.000				
74	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1103		CCB2-140320	CCB ICPMS_TW	1.000				
75	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	LCVL5	2511		LCVL2-140320	LCVL6020A_W	1.000				
76	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	LCVL5	2512		LCVL2-140320	LCVL6020A_W	1.000				
77	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1104		CCB2-140320	CCB ICPMS_TW	1.000				
78	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1105		CCB2-140320	CCB ICPMS_TW	1.000				
79	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	SampleW	2406		1403158-09A	SAMP6020A_W	1.000				
80	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	SampleW	2407		1403158-10A	SAMP6020A_W	1.000				
81	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	SampleW	2408		1403158-11A	SAMP6020A_W	1.000				
82	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	SampleW	2409		1403158-12A	SAMP6020A_W	1.000				
83	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	SampleW	2410		1403158-13A	SAMP6020A_W	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
84	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	SampleW	2411		1403158-14A	SAMP6020A_W	1.000				
85	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	SampleW	2412		1403158-15A	SAMP6020A_W	1.000				
86	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	SampleW	2501		1403158-16A	SAMP6020A_W	1.000				
87	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	SampleW	2502		1403158-17A	SAMP6020A_W	1.000				
88	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	SampleW	2503		1403158-18A	SAMP6020A_W	1.000				
89	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCV1	1307		CCV3-140320	CCV ICPMS_TW	1.000				
90	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCV1	2112		CCV3-140320	CCV ICPMS_TW	1.000				
91	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCV1	1306		CCV3-140320	CCV ICPMS_TW	1.000				
92	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1102		CCB3-140320	CCB ICPMS_TW	1.000				
93	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1103		CCB3-140320	CCB ICPMS_TW	1.000				
94	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	LCVL5	2512		LCVL3-140320	LCVL6020A_W	1.000				
95	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	LCVL5	2511		LCVL3-140320	LCVL6020A_W	1.000				
96	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1104		CCB3-140320	CCB ICPMS_TW	1.000				
97	C:\ICPCHEM\1\METHODS\DHL_2Fe.M	CCB	1105		CCB3-140320	CCB ICPMS_TW	1.000				
98		Keyword		StandBy							
99		Keyword		SMPLEND	End of SMPL						
100		Keyword		End	End of Sequence						
101		Keyword		BLKBEG	Start of BLANK						
102		Keyword		BLKEND	End of BLANK						
103		Keyword		ERRBEG	Start of ERRTERM						
104		Keyword		ERREND	End of ERRTERM						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **3/18/2014 10:37:20 AM**
Digestion: **Start: 3/20/2014 11:50:00 AM / Stop: 3/20/2014 4:25:00 PM**
Prep End Date: **3/20/2014 4:36:34 PM**

Prep Batch **62377** Prep Code: **3005A** Technician: **James McNeely**

Prep Factor Units: **mL/mL**

Equipment List
Thermometer #77
Hot Block #2

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1403121-02D	Equip Blank		50	50	1.000	1 of 1
1403121-15D	Equip Blank		50	50	1.000	1 of 1
1403158-01A	Aqueous		50	50	1.000	1 of 1
1403158-02A	Aqueous		50	50	1.000	1 of 1
1403158-03A	Aqueous		50	50	1.000	1 of 1
1403158-04A	Aqueous		50	50	1.000	1 of 1
1403158-04A MS	Aqueous		50	50	1.000	of
1403158-04A MSD	Aqueous		50	50	1.000	of
1403158-04A PDS	Aqueous		50	50	1.000	of
1403158-04A SD	Aqueous		50	50	1.000	of
1403158-05A	Aqueous		50	50	1.000	1 of 1
1403158-06A	Aqueous		50	50	1.000	1 of 1
1403158-07A	Aqueous		50	50	1.000	1 of 1
1403158-08A	Aqueous		50	50	1.000	1 of 1
1403158-09A	Aqueous		50	50	1.000	1 of 1
1403158-10A	Aqueous		50	50	1.000	1 of 1
1403158-11A	Equip Blank		50	50	1.000	1 of 1
1403158-12A	Aqueous		50	50	1.000	1 of 1
1403158-13A	Aqueous		50	50	1.000	1 of 1
1403158-14A	Aqueous		50	50	1.000	1 of 1
1403158-15A	Aqueous		50	50	1.000	1 of 1
1403158-16A	Aqueous		50	50	1.000	1 of 1
1403158-17A	Aqueous		50	50	1.000	of 3
1403158-18A	Aqueous		50	50	1.000	1 of 1
LCS-62377	Aqueous		50	50	1.000	of
LCSD-62377	Aqueous		50	50	1.000	of
MB-62377	Aqueous		50	50	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
7646	Digestion Vessels	69	ml	06/21/2014
7683	HCL (Trace Grade)	1	ml	08/09/2016
7684	Nitric Acid (Trace Metal Grade)	1	ml	08/07/2015

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-140109-01	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/06/2015
MET-140109-02	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/10/2015
MET-SPIKE-140303	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	04/03/2014
MET-SPIKE-140313-01	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MS	0.2	04/13/2014
MET-SPIKE-140313-02	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	04/13/2014

Calibration Summary Report

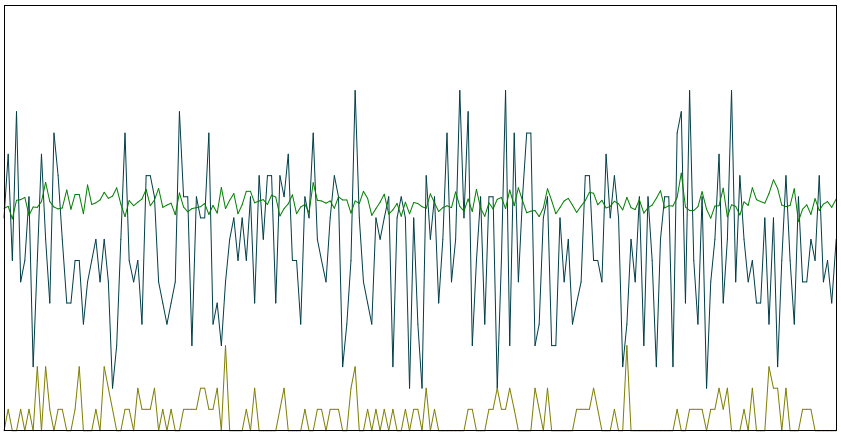
Instrument: ICPMS2
Current Method: C:\ICPCHEM\1\METHODS\DHL_2Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_2Fe.C
Last Update: Mar 20 2014 01:11 pm
Cal Type: Y=aX+[blank]

Standard	Date Acquired	File
BLANK STD 1	Mar 20 2014 12:27 pm	c:\icpchem\1\data\14c20l01.b\007calb.d\
1 & 20ppb std 2	Mar 20 2014 12:33 pm	c:\icpchem\1\data\14c20l01.b\008cals.d\
10 & 200ppb std 3	Mar 20 2014 12:39 pm	c:\icpchem\1\data\14c20l01.b\009cals.d\
50 & 1000 std 4	Mar 20 2014 12:45 pm	c:\icpchem\1\data\14c20l01.b\010cals.d\
100 & 2000 std 5	Mar 20 2014 12:51 pm	c:\icpchem\1\data\14c20l01.b\011cals.d\
250 & 5000ppb std 6	Mar 20 2014 12:57 pm	c:\icpchem\1\data\14c20l01.b\012cals.d\
500 & 10000ppb std 7	Mar 20 2014 01:02 pm	c:\icpchem\1\data\14c20l01.b\013cals.d\
2000 ppb std 8	Mar 20 2014 01:08 pm	c:\icpchem\1\data\14c20l01.b\014cals.d\

Element Name	Corr Coef	Coef A	Coef B	Lvl 2	Lvl 5	Lvl 7	Lvl 7%	Lvl 8	Lvl 8%
Li	-0.7751	-0.0005692	8.189	299.00	114	433		--------	
Be	1.0000	0.09869	0.006123	0.91	94	493	99%	2,003	100%
B	0.9998	0.0675	0.3796	1.04	87	463	93%	2,013	
Na	0.9996	0.2013	42.32	12.88	1,768	9,485	95%	25,310	101%
Mg	0.9999	0.09108	0.8559	19.81	1,840	9,713	97%	25,180	101%
Al	0.9999	0.02436	0.1906	19.00	1,902	10,040	100%	--------	
K	0.9997	0.06293	5.307	23.71	1,810	9,556	96%	25,260	101%
Ca	1.0000	0.008855	0.5732	14.53	1,833	9,895	99%	25,100	100%
Ti	1.0000	0.03086	0.003425	1.19	99	514	103%	1,997	100%
V	1.0000	1.306	0.2967	0.88	94	505	101%	1,999	100%
Cr	1.0000	1.661	0.4177	0.97	96	511	102%	1,997	100%
Mn	1.0000	0.7683	0.1518	0.98	95	501	100%	2,000	100%
Fe	1.0000	1.439	6.052	19.78	1,929	10,030	100%	--------	
Co	1.0000	3.246	0.1315	0.97	97	514	103%	1,997	100%
Ni	1.0000	0.9329	0.06208	0.97	96	511	102%	1,997	100%
Cu	1.0000	2.606	0.5029	0.95	97	511	102%	1,997	100%
Zn	1.0000	0.3161	0.1692	1.12	99	508	102%	1,998	100%
As	1.0000	0.1987	0.02506	0.91	95	499	100%	2,001	100%
Se	1.0000	0.0121	0.008825	0.82	97	499	100%	2,001	100%
Sr	1.0000	0.3157	0.09671	0.90	93	498	100%	2,001	100%
Mo	1.0000	0.06094	0.009139	0.81	92	491	98%	2,004	100%
Ag	0.9999	0.1435	0.004228	0.93	98	503	101%	--------	
Cd	1.0000	0.03035	0.00125	0.84	94	484	97%	2,006	100%
Sn	1.0000	0.08994	0.01553	0.85	92	501	100%	2,002	100%
Sb	0.9997	0.1191	0.008256	0.90	94	506	101%	--------	
Ba	0.9999	0.04608	0.004423	0.87	92	482	96%	2,007	100%
Tl	1.0000	0.3105	0.01758	0.93	96	508	102%	1,998	100%
Pb	1.0000	0.4352	0.02566	0.93	96	509	102%	1,998	100%

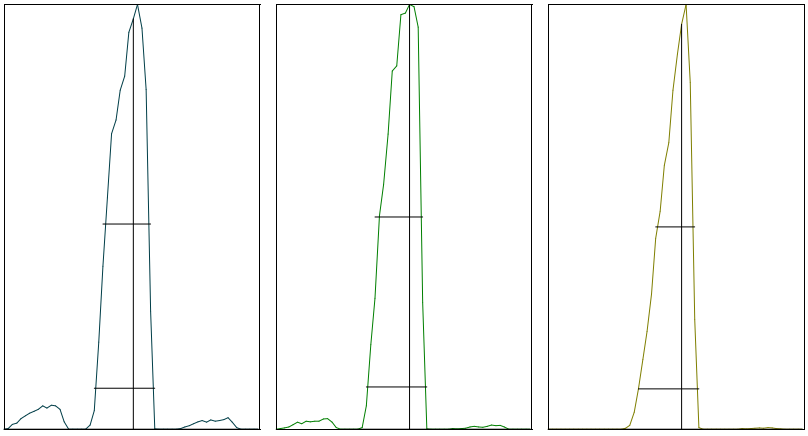
Tune Report

Tune File : He.U
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.4100 sec	
n:	200	
Oxide:	51/59	0.321%
Doubly Charged:	70/140	1.464%

m/z	Range	Count	Mean	RSD%	Background
51	20	9.0	8.7	37.78	0.50
59	5,000	2723.0	2675.0	3.63	0.10
75	20	0.0	0.7	130.17	0.20
51/59	1	0.330%	0.325%	38.08	
78	20	1.0	0.3	179.31	0.50



m/z:	59	89	205
Height:	2,757	2,063	5,370
Axis:	59.05	89.10	205.10
W-50%:	0.55	0.55	0.45
W-10%:	0.700	0.700	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.5600 sec

Y axis : Linear

Generated : Mar 20, 2014 11:35:24
Printed : Mar 20, 2014 11:35:26

Tune Report

Tune File : He.U
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1550	W	Extract 1	:	0	V	AMU Gain	:	127	
RF Matching	:	1.6	V	Extract 2	:	-125	V	AMU Offset	:	123	
Smpl Depth	:	10	mm	Omega Bias-ce	:	-30	V	Axis Gain	:	0.9997	
Torch-H	:	0	mm	Omega Lens-ce	:	0.8	V	Axis Offset	:	0.01	
Torch-V	:	0.4	mm	Cell Entrance	:	-40	V	QP Bias	:	-15	V
Carrier Gas	:	1.2	L/min	QP Focus	:	-10	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1670	V
Sample Pump	:	---	rps	OctP RF	:	180	V	Pulse HV	:	1310	V
S/C Temp	:	2	degC	OctP Bias	:	-19	V				

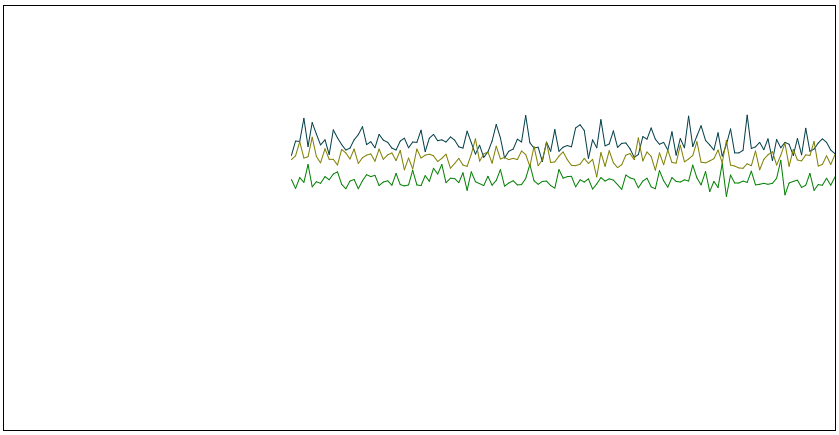
===Reaction Cell===

Reaction Mode	:	ON									
H2 Gas	:	0	mL/min	He Gas	:	5	mL/min	Optional Gas	:	---	%

Generated : Mar 20, 2014 11:35:24
Printed : Mar 20, 2014 11:35:29

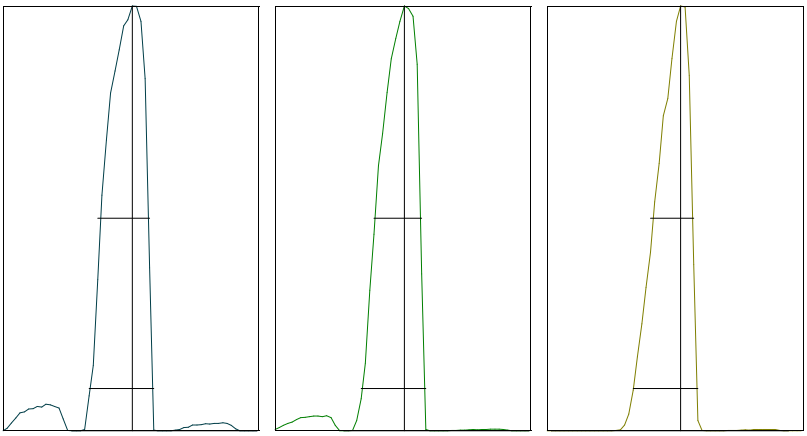
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.7200 sec	
n:	131	
Oxide:	51/59	58.392%
Doubly Charged:	70/140	2.534%

m/z	Range	Count	Mean	RSD%	Background
7	20,000	13017.0	13561.9	3.35	3.10
89	50,000	29882.0	29409.4	2.57	2.20
205	20,000	13003.0	12841.0	2.75	3.20
156/140	2	0.645%	0.736%	8.85	
70/140	5	2.611%	2.508%	5.28	
23	200,000	159327.0	156994.1	1.21	2.30



m/z:	59	89	205
Height:	19,311	30,155	14,527
Axis:	59.05	89.05	205.10
W-50%:	0.60	0.55	0.50
W-10%:	0.7500	0.7500	0.7500

Integration Time:	0.1000 sec
Acquisition Time:	22.5600 sec

Y axis : Linear

Generated : Mar 20, 2014 11:29:47
Printed : Mar 20, 2014 11:29:49

Tune Report

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1550	W	Extract 1	:	0	V	AMU Gain	:	127	
RF Matching	:	1.6	V	Extract 2	:	-125	V	AMU Offset	:	123	
Smpl Depth	:	10	mm	Omega Bias-ce	:	-30	V	Axis Gain	:	0.9997	
Torch-H	:	0	mm	Omega Lens-ce	:	0.8	V	Axis Offset	:	0.01	
Torch-V	:	0.4	mm	Cell Entrance	:	-40	V	QP Bias	:	0	V
Carrier Gas	:	1.2	L/min	QP Focus	:	1	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1670	V
Sample Pump	:	---	rps	OctP RF	:	180	V	Pulse HV	:	1310	V
S/C Temp	:	2	degC	OctP Bias	:	-6	V				

===Reaction Cell===

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

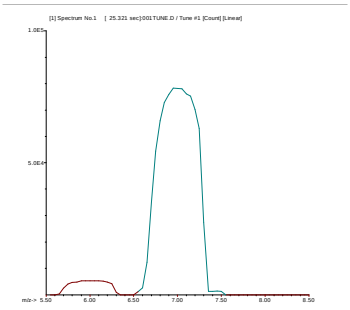
Generated : Mar 20, 2014 11:29:47
Printed : Mar 20, 2014 11:29:52

6020 QC Tune Report

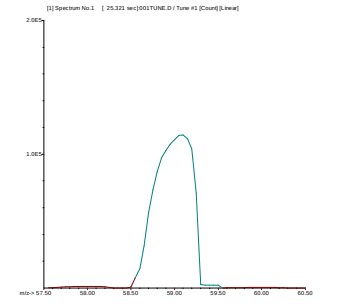
Data File: C:\ICPCHEM\1\DATA\14C20l00.B\001TUNE.D
Date Acquired: Mar 20 2014 11:44 am
Acq. Method: TN6020.M
Operator: JWC
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

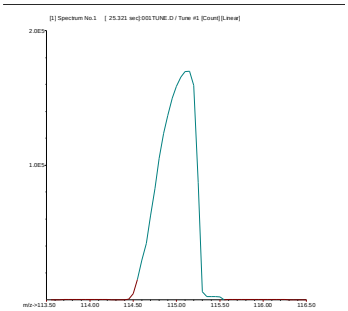
Element	Actual	Required	Flag
7 Li	1.02	5.00	
59 Co	1.45	5.00	
115 In	1.23	5.00	
205 Tl	0.62	5.00	



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: 59.05
Required: 58.90 - 59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:



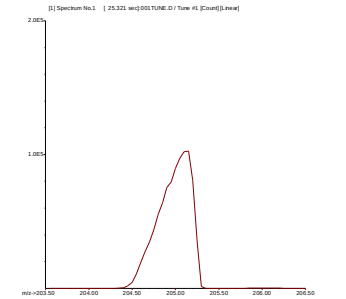
115 In

Mass Calib.

Actual:	115.10	
Required:	114.90 -	115.10
Flag:		

Peak Width

Actual:	0.65
Required:	0.90
Flag:	



205 Tl

Mass Calib.

Actual:	205.10	
Required:	204.90 -	205.10
Flag:		

Peak Width

Actual:	0.65
Required:	0.90
Flag:	

P/A Factor Tuning Report

Acquired:Mar 20 2014 11:39 am

Mass[amu]	Element	P/A Factor
6	Li	0.079761
9		0.089634
11		Sensitivity too low
23	Na	0.099402
24	Mg	0.103689
27	Al	0.106334
39	K	0.104325
44	Ca	Sensitivity too low
45	Sc	0.105468
47	Ti	Sensitivity too low
51	V	0.108438
52	Cr	0.112206
55	Mn	0.113999
59	Co	0.118448
60	Ni	0.120864
63	Cu	0.123465
66	Zn	0.123115
72	Ge	0.121508
75	As	0.120413
78	Se	Sensitivity too low
88	Sr	0.121709
95	Mo	0.120914
106	(Cd)	0.128736
107	Ag	Sensitivity too low
108	(Cd)	0.129086
111	Cd	0.130673
115	In	0.129821
118	Sn	0.129518
121	Sb	0.129229
137	Ba	Sensitivity too low
205	Tl	0.141303
206	(Pb)	0.141344
207	(Pb)	0.141246
208	Pb	0.141066
209	Bi	0.140927

===Detector Parameters===
Discriminator: 8.0 mV
Analog HV: 1670 V
Pulse HV: 1310 V

Calibration Blank QC Report

Acq. Method: DHL_2Fe.M Sample Name: BLANK STD 1
Operator: SW Instrument: ICPMS2
Last Cal. Update: Mar 20 2014 12:30 pm
Date Acquired: Mar 20 2014 12:27 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	3341087.00	A	23530.00	0.70
7	Li	2	45	219127.00	P	1874.00	0.86
9	Be	2	6	102.23	P	13.47	13.18
11	B	2	6	6341.35	P	46.69	0.74
23	Na	1	45	16481.77	P	306.30	1.86
24	Mg	1	45	333.35	P	21.86	6.56
27	Al	1	45	74.22	P	12.10	16.30
39	K	1	45	2066.87	P	43.34	2.10
44	Ca	2	45	15337.46	P	303.00	1.98
45	Sc	1	---	77897.72	P	76.80	0.10
45	Sc	2	---	5352738.00	A	101700.00	1.90
47	Ti	1	45	1.33	P	1.33	99.97
51	V	1	45	115.56	P	13.88	12.01
51	V	2	---		P		
52	Cr	1	45	162.67	P	6.11	3.76
55	Mn	1	45	59.11	P	11.65	19.71
56	Fe	1	72	2209.06	P	58.13	2.63
59	Co	1	72	48.00	P	1.33	2.78
60	Ni	1	72	22.67	P	5.33	23.53
60	Ni	2	---		P		
63	Cu	1	72	183.56	P	28.73	15.65
63	Cu	2	---		P		
66	Zn	1	72	61.78	P	9.65	15.61
66	Zn	2	---		P		
72	Ge	1	---	73008.27	P	132.10	0.18
72	Ge	2	---		P		
75	As	1	72	9.15	P	1.57	17.20
78	Se	1	72	3.22	P	0.80	24.87
88	Sr	2	###	3306.00	P	107.50	3.25
95	Mo	2	###	312.24	P	32.89	10.53
107	Ag	2	###	144.45	P	18.36	12.71
111	Cd	2	###	42.68	P	16.54	38.76
115	In	2	---	6838441.00	A	68950.00	1.01
118	Sn	2	###	531.14	P	33.39	6.29
121	Sb	2	###	282.23	P	5.09	1.80
137	Ba	2	###	151.12	P	32.72	21.65
205	Tl	2	###	417.80	P	17.11	4.10
208	Pb	2	###	610.03	P	14.53	2.38
209	Bi	2	---	4754241.00	A	51630.00	1.09

Calibration Standard QC Report

Acq. Method: DHL_2Fe.M Sample Name: 1 & 20ppb std 2
Operator: SW Instrument: ICPMS2
Date Acquired: Mar 20 2014 12:33 pm
Last Cal. Update: Mar 20 2014 12:30 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	3400954.00	A	45090.00	1.33
7	Li	2	45	222373.20	P	1885.00	0.85
9	Be	2	6	1633.46	P	66.59	4.08
11	B	2	6	7641.95	P	1135.00	14.85
23	Na	1	45	17903.18	P	248.70	1.39
24	Mg	1	45	1060.07	P	84.13	7.94
27	Al	1	45	260.45	P	12.67	4.86
39	K	1	45	2710.30	P	23.10	0.85
44	Ca	2	45	19465.13	P	52.93	0.27
45	Sc	1	---	79730.48	P	555.30	0.70
45	Sc	2	---	5546677.00	A	23220.00	0.42
47	Ti	1	45	16.00	P	2.31	14.43
51	V	1	45	574.68	P	14.85	2.58
51	V	2	---		P		
52	Cr	1	45	807.59	P	30.00	3.71
55	Mn	1	45	359.56	P	30.00	8.34
56	Fe	1	72	12809.54	P	137.10	1.07
59	Co	1	72	1213.84	P	34.29	2.82
60	Ni	1	72	360.01	P	46.19	12.83
60	Ni	2	---		P		
63	Cu	1	72	1106.72	P	29.70	2.68
63	Cu	2	---		P		
66	Zn	1	72	193.78	P	12.67	6.54
66	Zn	2	---		P		
72	Ge	1	---	74239.29	P	73.17	0.10
72	Ge	2	---		P		
75	As	1	72	76.37	P	1.00	1.30
78	Se	1	72	6.96	P	1.32	18.90
88	Sr	2	115	13334.86	P	319.80	2.40
95	Mo	2	115	2043.53	P	18.56	0.91
107	Ag	2	115	4829.78	P	209.90	4.35
111	Cd	2	115	936.74	P	17.61	1.88
115	In	2	---	7021859.00	A	41870.00	0.60
118	Sn	2	115	3223.76	P	186.80	5.79
121	Sb	2	115	4066.23	P	117.10	2.88
137	Ba	2	115	1556.79	P	56.08	3.60
205	Tl	2	209	7503.33	P	48.63	0.65
208	Pb	2	209	10507.45	P	313.80	2.99
209	Bi	2	---	4902031.00	A	17040.00	0.35

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3400954.00	1.33	3341086.80	101.8	60 - 120	
45	Sc	1	79730.48	0.70	77897.73	102.4	60 - 120	
45	Sc	2	5546677.00	0.42	5352738.50	103.6	60 - 120	
72	Ge	1	74239.29	0.10	73008.27	101.7	60 - 120	
115	In	2	7021859.00	0.60	6838441.00	102.7	60 - 120	
209	Bi	2	4902031.00	0.35	4754241.00	103.1	60 - 120	

Calibration Standard QC Report

Acq. Method: DHL_2Fe.M Sample Name: 10 & 200ppb std 3
Operator: SW Instrument: ICPMS2
Date Acquired: Mar 20 2014 12:39 pm
Last Cal. Update: Mar 20 2014 12:36 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)		
6	Li	2	---	3462730.00	A	5782.00	0.17		
7	Li	2	45	225163.59	P	1353.00	0.60		Fail
9	Be	2	6	15108.13	P	606.50	4.01		Fail
11	B	2	6	14849.03	P	86.04	0.58		Fail
23	Na	1	45	31010.06	P	314.40	1.01		Fail
24	Mg	1	45	7156.17	P	228.40	3.19		Fail
27	Al	1	45	1950.36	P	37.58	1.93		Fail
39	K	1	45	6988.33	P	179.30	2.57		Fail
44	Ca	2	45	58436.49	P	1062.00	1.82		Fail
45	Sc	1	---	82188.01	P	852.80	1.04		
45	Sc	2	---	5488115.00	A	23060.00	0.42		
47	Ti	1	45	119.11	P	7.34	6.16		Fail
51	V	1	45	4999.03	P	116.90	2.34		Fail
51	V	2	---		P				
52	Cr	1	45	6366.19	P	213.30	3.35		Fail
55	Mn	1	45	2912.74	P	43.47	1.49		Fail
56	Fe	1	72	106128.80	P	1297.00	1.22		Fail
59	Co	1	72	11462.33	P	54.80	0.48		Fail
60	Ni	1	72	3365.72	P	144.50	4.29		Fail
60	Ni	2	---		P				
63	Cu	1	72	9585.12	P	56.00	0.58		Fail
63	Cu	2	---		P				
66	Zn	1	72	1175.17	P	74.53	6.34		Fail
66	Zn	2	---		P				
72	Ge	1	---	75498.45	P	590.70	0.78		
72	Ge	2	---		P				
75	As	1	72	752.43	P	121.20	16.11		Fail
78	Se	1	72	46.67	P	3.20	6.86		Fail
88	Sr	2	115	102948.40	P	2263.00	2.20		Fail
95	Mo	2	115	18910.66	P	159.10	0.84		Fail
107	Ag	2	115	47064.95	P	608.80	1.29		Fail
111	Cd	2	115	9488.30	P	170.30	1.79		Fail
115	In	2	---	6996621.00	A	50070.00	0.72		
118	Sn	2	115	28492.46	P	369.10	1.30		Fail
121	Sb	2	115	36894.81	P	383.90	1.04		Fail
137	Ba	2	115	14456.22	P	362.00	2.50		Fail
205	Tl	2	209	70908.72	P	1885.00	2.66		Fail
208	Pb	2	209	100008.60	P	2172.00	2.17		Fail
209	Bi	2	---	4870202.00	A	28540.00	0.59		

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3462729.50	0.17	3341086.80	103.6	60 - 120	
45	Sc	1	82188.01	1.04	77897.73	105.5	60 - 120	
45	Sc	2	5488115.50	0.42	5352738.50	102.5	60 - 120	
72	Ge	1	75498.45	0.78	73008.27	103.4	60 - 120	
115	In	2	6996620.50	0.72	6838441.00	102.3	60 - 120	
209	Bi	2	4870202.50	0.59	4754241.00	102.4	60 - 120	

Calibration Standard QC Report

Acq. Method: DHL_2Fe.M Sample Name: 50 & 1000 std 4
Operator: SW Instrument: ICPMS2
Date Acquired: Mar 20 2014 12:45 pm
Last Cal. Update: Mar 20 2014 12:42 pm

QC&ISTD Elements

Element		CPS Mean			SD	RSD(%)	
6 Li	2 ---	3392164.00	A		6822.00	0.20	
7 Li	2 45	221291.59	P		1263.00	0.57	Fail
9 Be	2 6	75983.85	P		669.50	0.88	Fail
11 B	2 6	54236.28	P		455.30	0.84	Fail
23 Na	1 45	87312.30	P		1174.00	1.34	Fail
24 Mg	1 45	33307.85	P		181.10	0.54	Fail
27 Al	1 45	9120.77	P		78.71	0.86	Fail
39 K	1 45	24810.08	P		137.70	0.56	Fail
44 Ca	2 45	230299.41	P		1168.00	0.51	Fail
45 Sc	1 ---	80084.02	P		481.50	0.60	
45 Sc	2 ---	5430956.00	A		22570.00	0.42	
47 Ti	1 45	568.02	P		16.00	2.82	
51 V	1 45	24324.64	P		156.50	0.64	Fail
51 V	2 ---		P				
52 Cr	1 45	31420.63	P		306.00	0.97	Fail
55 Mn	1 45	14299.64	P		152.90	1.07	Fail
56 Fe	1 72	521226.81	P		3941.00	0.76	Fail
59 Co	1 72	57624.77	P		151.80	0.26	
60 Ni	1 72	16434.59	P		176.10	1.07	
60 Ni	2 ---		P				
63 Cu	1 72	46932.97	P		583.20	1.24	Fail
63 Cu	2 ---		P				
66 Zn	1 72	5696.18	P		97.67	1.71	Fail
66 Zn	2 ---		P				
72 Ge	1 ---	73520.64	P		751.10	1.02	
72 Ge	2 ---		P				
75 As	1 72	3389.36	P		6.44	0.19	
78 Se	1 72	216.00	P		3.09	1.43	Fail
88 Sr	2 115	500069.00	P		4204.00	0.84	Fail
95 Mo	2 115	94399.05	P		239.80	0.25	Fail
107 Ag	2 115	235044.09	P		3670.00	1.56	Fail
111 Cd	2 115	47585.15	P		669.30	1.41	Fail
115 In	2 ---	6868074.00	A		23600.00	0.34	
118 Sn	2 115	141485.30	P		1425.00	1.01	Fail
121 Sb	2 115	187226.91	P		2449.00	1.31	Fail
137 Ba	2 115	71490.13	P		1386.00	1.94	Fail
205 Tl	2 209	356229.41	P		5530.00	1.55	Fail
208 Pb	2 209	502015.31	P		2904.00	0.58	Fail
209 Bi	2 ---	4857273.00	A		45670.00	0.94	

ISTD Elements

Element		CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2	3392164.00	0.20	3341086.80	101.5	60 - 120	
45 Sc	1	80084.02	0.60	77897.73	102.8	60 - 120	
45 Sc	2	5430956.50	0.42	5352738.50	101.5	60 - 120	
72 Ge	1	73520.64	1.02	73008.27	100.7	60 - 120	
115 In	2	6868073.50	0.34	6838441.00	100.4	60 - 120	
209 Bi	2	4857273.50	0.94	4754241.00	102.2	60 - 120	

Calibration Standard QC Report

Acq. Method: DHL_2Fe.M Sample Name: 100 & 2000 std 5
Operator: SW Instrument: ICPMS2
Date Acquired: Mar 20 2014 12:51 pm
Last Cal. Update: Mar 20 2014 12:48 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	
6	Li	2	---	3297873.00	A	7032.00	0.21	
7	Li	2	45	216019.30	P	1266.00	0.59	Fail
9	Be	2	6	153536.30	P	919.30	0.60	Fail
11	B	2	6	103035.10	P	1333.00	1.29	Fail
23	Na	1	45	156960.09	P	1017.00	0.65	Fail
24	Mg	1	45	66418.09	P	311.20	0.47	Fail
27	Al	1	45	18336.72	P	214.20	1.17	Fail
39	K	1	45	46998.09	P	516.90	1.10	Fail
44	Ca	2	45	446890.91	P	10010.00	2.24	Fail
45	Sc	1	---	78856.81	P	243.90	0.31	
45	Sc	2	---	5318431.00	A	41170.00	0.77	
47	Ti	1	45	1200.06	P	40.82	3.40	
51	V	1	45	48709.19	P	374.70	0.77	
51	V	2	---		P			
52	Cr	1	45	63242.62	P	881.20	1.39	Fail
55	Mn	1	45	28814.58	P	170.70	0.59	
56	Fe	1	72	1019202.00	M	15030.00	1.47	
59	Co	1	72	115176.80	P	1233.00	1.07	
60	Ni	1	72	33012.37	P	298.60	0.90	
60	Ni	2	---		P			
63	Cu	1	72	93018.20	P	715.20	0.77	
63	Cu	2	---		P			
66	Zn	1	72	11516.61	P	201.50	1.75	Fail
66	Zn	2	---		P			
72	Ge	1	---	73295.50	P	800.30	1.09	
72	Ge	2	---		P			
75	As	1	72	6921.36	P	34.06	0.49	
78	Se	1	72	433.12	P	4.18	0.96	Fail
88	Sr	2	115	994675.13	P	8597.00	0.86	Fail
95	Mo	2	115	189489.50	P	1821.00	0.96	Fail
107	Ag	2	115	472672.31	P	7983.00	1.69	Fail
111	Cd	2	115	96103.51	P	1307.00	1.36	Fail
115	In	2	---	6741056.00	A	75450.00	1.12	
118	Sn	2	115	280647.41	P	3844.00	1.37	Fail
121	Sb	2	115	377218.09	P	5595.00	1.48	Fail
137	Ba	2	115	143613.20	P	532.50	0.37	Fail
205	Tl	2	209	706923.31	P	3251.00	0.46	Fail
208	Pb	2	209	994876.81	P	18010.00	1.81	Fail
209	Bi	2	---	4763367.00	A	51860.00	1.09	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3297873.50	0.21	3341086.80	98.7	60 - 120	
45	Sc	1	78856.81	0.31	77897.73	101.2	60 - 120	
45	Sc	2	5318431.50	0.77	5352738.50	99.4	60 - 120	
72	Ge	1	73295.51	1.09	73008.27	100.4	60 - 120	
115	In	2	6741056.00	1.12	6838441.00	98.6	60 - 120	
209	Bi	2	4763367.50	1.09	4754241.00	100.2	60 - 120	

Calibration Standard QC Report

Acq. Method: DHL_2Fe.M Sample Name: 250 & 5000ppb std 6
Operator: SW Instrument: ICPMS2
Date Acquired: Mar 20 2014 12:57 pm
Last Cal. Update: Mar 20 2014 12:54 pm

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)	
6 Li	2 ---	3256673.00	A	45970.00	1.41	
7 Li	2 45	210494.50	P	1573.00	0.75	Fail
9 Be	2 6	387123.00	P	4039.00	1.04	Fail
11 B	2 6	252056.59	P	1419.00	0.56	Fail
23 Na	1 45	375591.31	P	2639.00	0.70	Fail
24 Mg	1 45	167296.41	P	732.10	0.44	
27 Al	1 45	46900.30	P	65.97	0.14	
39 K	1 45	115800.50	P	1542.00	1.33	Fail
44 Ca	2 45	1141028.00	A	5720.00	0.50	Fail
45 Sc	1 ---	77232.98	P	453.50	0.59	
45 Sc	2 ---	5278782.00	A	31190.00	0.59	
47 Ti	1 45	2972.30	P	41.92	1.41	
51 V	1 45	125541.30	P	949.90	0.76	
51 V	2 ---		A			
52 Cr	1 45	162356.91	P	709.00	0.44	
55 Mn	1 45	73662.63	P	383.60	0.52	
56 Fe	1 72	2588246.00	A	46160.00	1.78	
59 Co	1 72	294516.00	P	610.70	0.21	
60 Ni	1 72	84471.65	P	287.70	0.34	
60 Ni	2 ---		P			
63 Cu	1 72	237824.70	P	1103.00	0.46	
63 Cu	2 ---		P			
66 Zn	1 72	29137.21	P	241.40	0.83	
66 Zn	2 ---		P			
72 Ge	1 ---	72157.53	P	243.90	0.34	
72 Ge	2 ---		P			
75 As	1 72	17757.92	P	44.18	0.25	
78 Se	1 72	1073.41	P	7.43	0.69	Fail
88 Sr	2 115	2622635.00	A	18030.00	0.69	Fail
95 Mo	2 115	486385.50	P	2790.00	0.57	Fail
107 Ag	2 115	1178272.00	A	16850.00	1.43	Fail
111 Cd	2 115	241561.20	P	2106.00	0.87	Fail
115 In	2 ---	6676524.00	A	76470.00	1.15	
118 Sn	2 115	719403.88	P	2427.00	0.34	Fail
121 Sb	2 115	961932.13	P	5910.00	0.61	Fail
137 Ba	2 115	366104.81	P	3554.00	0.97	Fail
205 Tl	2 209	1827641.00	A	18200.00	1.00	Fail
208 Pb	2 209	2540863.00	A	10990.00	0.43	Fail
209 Bi	2 ---	4713307.00	A	11980.00	0.25	

ISTD Elements

Element		CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2	3256673.50	1.41	3341086.80	97.5	60 - 120	
45 Sc	1	77232.98	0.59	77897.73	99.1	60 - 120	
45 Sc	2	5278782.00	0.59	5352738.50	98.6	60 - 120	
72 Ge	1	72157.52	0.34	73008.27	98.8	60 - 120	
115 In	2	6676524.50	1.15	6838441.00	97.6	60 - 120	
209 Bi	2	4713307.50	0.25	4754241.00	99.1	60 - 120	

Calibration Standard QC Report

Acq. Method: DHL_2Fe.M Sample Name: 500 & 10000ppb std
Operator: SW Instrument: ICPMS2
Date Acquired: Mar 20 2014 01:02 pm
Last Cal. Update: Mar 20 2014 01:00 pm

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)	
6 Li 2 ---	3180534.00	A	6644.00	0.21		
7 Li 2 45	206638.41	P	1492.00	0.72		Fail
9 Be 2 6	773824.00	M	10430.00	1.35		Fail
11 B 2 6	503490.69	P	3987.00	0.79		Fail
23 Na 1 45	746365.69	P	2298.00	0.31		Fail
24 Mg 1 45	338735.00	P	328.40	0.10		
27 Al 1 45	93605.25	P	1106.00	1.18		
39 K 1 45	232074.00	P	755.80	0.33		Fail
44 Ca 2 45	2294623.00	A	12620.00	0.55		Fail
45 Sc 1 ---	76506.88	P	4.66	0.01		
45 Sc 2 ---	5204955.00	A	113800.00	2.19		
47 Ti 1 45	6063.40	P	64.37	1.06		
51 V 1 45	252409.59	P	1440.00	0.57		
51 V 2 ---		A				
52 Cr 1 45	324833.31	P	2359.00	0.73		
55 Mn 1 45	147254.70	P	773.40	0.53		
56 Fe 1 72	5091201.00	A	34860.00	0.68		
59 Co 1 72	588573.00	P	1390.00	0.24		
60 Ni 1 72	168297.80	P	507.70	0.30		
60 Ni 2 ---		P				
63 Cu 1 72	469553.19	P	867.00	0.18		
63 Cu 2 ---		A				
66 Zn 1 72	56678.49	P	326.40	0.58		
66 Zn 2 ---		P				
72 Ge 1 ---	70569.03	P	335.60	0.48		
72 Ge 2 ---		P				
75 As 1 72	35022.06	P	126.60	0.36		
78 Se 1 72	2132.25	P	6.84	0.32		
88 Sr 2 115	5158504.00	A	34680.00	0.67		Fail
95 Mo 2 115	980160.69	P	8098.00	0.83		Fail
107 Ag 2 115	2365801.00	A	30780.00	1.30		Fail
111 Cd 2 115	481472.69	P	8481.00	1.76		Fail
115 In 2 ---	6556784.00	A	108500.00	1.65		
118 Sn 2 115	1478180.00	A	23780.00	1.61		Fail
121 Sb 2 115	1975048.00	A	11220.00	0.57		Fail
137 Ba 2 115	727556.00	P	6123.00	0.84		Fail
205 Tl 2 209	3665789.00	A	54800.00	1.49		Fail
208 Pb 2 209	5139146.00	A	50190.00	0.98		Fail
209 Bi 2 ---	4643969.00	A	46370.00	1.00		

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li 2	3180533.80	0.21	3341086.80	95.2	60 - 120	
45 Sc 1	76506.88	0.01	77897.73	98.2	60 - 120	
45 Sc 2	5204954.50	2.19	5352738.50	97.2	60 - 120	
72 Ge 1	70569.03	0.48	73008.27	96.7	60 - 120	
115 In 2	6556784.50	1.65	6838441.00	95.9	60 - 120	
209 Bi 2	4643969.50	1.00	4754241.00	97.7	60 - 120	

Calibration Standard QC Report

Acq. Method: DHL_2Fe.M Sample Name: 2000 ppb std 8
Operator: SW Instrument: ICPMS2
Date Acquired: Mar 20 2014 01:08 pm
Last Cal. Update: Mar 20 2014 01:06 pm

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)	
6 Li	2 ---	3390590.00	A	73720.00	2.17	
7 Li	2 45	221545.41	P	1988.00	0.90	Fail
9 Be	2 6	3351306.00	A	54120.00	1.61	
11 B	2 6	2310397.00	A	46870.00	2.03	Fail
23 Na	1 45	1996014.00	A	5983.00	0.30	Fail
24 Mg	1 45	891883.50	P	3160.00	0.35	
27 Al	1 45	336.45	P	27.21	8.09	Fail
39 K	1 45	620073.63	P	11880.00	1.92	Fail
44 Ca	2 45	6013411.00	A	57690.00	0.96	Fail
45 Sc	1 ---	77745.04	P	828.60	1.07	
45 Sc	2 ---	5397858.00	A	32160.00	0.60	
47 Ti	1 45	23954.25	P	338.10	1.41	
51 V	1 45	1015502.00	M	14840.00	1.46	
51 V	2 ---		A			
52 Cr	1 45	1289520.00	A	14210.00	1.10	
55 Mn	1 45	597471.50	P	4020.00	0.67	
56 Fe	1 72	13942.91	P	110.20	0.79	Fail
59 Co	1 72	2309646.00	A	14870.00	0.64	
60 Ni	1 72	664081.00	P	2399.00	0.36	
60 Ni	2 ---		A			
63 Cu	1 72	1854993.00	A	22380.00	1.21	
63 Cu	2 ---		A			
66 Zn	1 72	225079.50	P	1829.00	0.81	
66 Zn	2 ---		A			
72 Ge	1 ---	71275.44	P	444.90	0.62	
72 Ge	2 ---		P			
75 As	1 72	141721.80	P	1084.00	0.76	
78 Se	1 72	8630.45	P	98.93	1.15	
88 Sr	2 115	20814680.00	A	116400.00	0.56	Fail
95 Mo	2 115	4024497.00	A	36600.00	0.91	Fail
107 Ag	2 115	691.15	P	65.18	9.43	Fail
111 Cd	2 115	2005999.00	A	13690.00	0.68	
115 In	2 ---	6589722.00	A	81220.00	1.23	
118 Sn	2 115	5931687.00	A	58000.00	0.98	Fail
121 Sb	2 115	1234.54	P	48.58	3.94	Fail
137 Ba	2 115	3046428.00	A	15500.00	0.51	Fail
205 Tl	2 209	14341880.00	A	53460.00	0.37	
208 Pb	2 209	20101230.00	A	166700.00	0.83	
209 Bi	2 ---	4622938.00	A	54500.00	1.18	

ISTD Elements

Element		CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2	3390589.80	2.17	3341086.80	101.5	60 - 120	
45 Sc	1	77745.04	1.07	77897.73	99.8	60 - 120	
45 Sc	2	5397857.50	0.60	5352738.50	100.8	60 - 120	
72 Ge	1	71275.45	0.62	73008.27	97.6	60 - 120	
115 In	2	6589722.00	1.23	6838441.00	96.4	60 - 120	
209 Bi	2	4622938.50	1.18	4754241.00	97.2	60 - 120	

ICSA QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\017ICSA.D\017ICSA.D#

Date Acquired:	Mar 20 2014 01:25 pm	Sample Name:	**ICSA-140320**
Acq. Method:	DHL_2Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	786.400	ppb	1.22	8.00	5.00	FailSoil
9	Be	2	6	0.034	ppb	18.09	0.32	0.80	
11	B	2	6	7.752	ppb	1.96	30.00	30.00	
23	Na	1	45	87680.000	ppb	1.53	#######	#######	
24	Mg	1	45	92200.000	ppb	0.56	#######	#######	
27	Al	1	45	97680.000	ppb	0.67	#######	#######	
39	K	1	45	90880.000	ppb	0.49	#######	#######	
44	Ca	2	45	86960.000	ppb	1.51	#######	#######	
47	Ti	1	45	1957.000	ppb	0.53	10.00	10.00	
51	V	1	45	0.020	ppb	10.72	10.00	10.00	
52	Cr	1	45	0.469	ppb	1.58	8.00	5.00	
55	Mn	1	45	1.356	ppb	0.84	8.00	10.00	
56	Fe	1	72	91300.000	ppb	1.31	#######	#######	
59	Co	1	72	1.845	ppb	2.27	8.00	10.00	
60	Ni	1	72	1.620	ppb	7.36	8.00	10.00	
63	Cu	1	72	1.075	ppb	5.01	8.00	10.00	
66	Zn	1	72	2.478	ppb	3.58	10.00	5.00	
75	As	1	72	0.205	ppb	6.34	4.00	5.00	
78	Se	1	72	0.055	ppb	6.45	2.00	5.00	
88	Sr	2	115	0.412	ppb	2.30	10.00	10.00	
95	Mo	2	115	1891.000	ppb	1.27	8.00	5.00	
107	Ag	2	115	0.352	ppb	6.31	0.80	2.00	
111	Cd	2	115	0.504	ppb	11.58	1.20	1.00	
118	Sn	2	115	0.519	ppb	6.58	10.00	10.00	
121	Sb	2	115	1.036	ppb	4.75	4.00	2.50	
137	Ba	2	115	7.008	ppb	2.94	8.00	10.00	
205	Tl	2	209	0.369	ppb	4.00	4.00	1.50	
208	Pb	2	209	0.203	ppb	4.74	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3136864.50	0.61	3341086.80	93.9	60 - 120	
45	Sc	1	80192.12	0.70	77897.73	102.9	60 - 120	
45	Sc	2	5305990.50	1.19	5352738.50	99.1	60 - 120	
72	Ge	1	72608.82	0.57	73008.27	99.5	60 - 120	
115	In	2	6522167.50	1.15	6838441.00	95.4	60 - 120	
209	Bi	2	4407771.00	1.34	4754241.00	92.7	60 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\018ICSB.D\018ICSB.D#

Date Acquired:	Mar 20 2014 01:31 pm	Sample Name:	**ICSAB-140320**
Acq. Method:	DHL_2Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	1500.00	ppb	0.29	---	80 -		120	
9	Be	2	6	0.04	ppb	10.35	---	80 -		120	
11	B	2	6	6.02	ppb	0.79	---	80 -		120	
23	Na	1	45	84020.00	ppb	0.68	100000.00	80 -		120	
24	Mg	1	45	88280.00	ppb	1.05	100000.00	80 -		120	
27	Al	1	45	94640.00	ppb	0.18	100000.00	80 -		120	
39	K	1	45	88930.00	ppb	0.30	100000.00	80 -		120	
44	Ca	2	45	87440.00	ppb	2.48	100000.00	80 -		120	
47	Ti	1	45	1934.00	ppb	1.64	---	80 -		120	
51	V	1	45	37.73	ppb	1.29	40.00	80 -		120	
52	Cr	1	45	19.59	ppb	1.06	20.00	80 -		120	
55	Mn	1	45	19.70	ppb	0.98	20.00	80 -		120	
56	Fe	1	72	89480.00	ppb	0.66	100000.00	80 -		120	
59	Co	1	72	38.94	ppb	0.82	40.00	80 -		120	
60	Ni	1	72	36.87	ppb	0.81	40.00	80 -		120	
63	Cu	1	72	18.36	ppb	0.87	20.00	80 -		120	
66	Zn	1	72	19.87	ppb	2.92	20.00	80 -		120	
75	As	1	72	19.50	ppb	0.28	20.00	80 -		120	
78	Se	1	72	19.30	ppb	3.68	20.00	80 -		120	
88	Sr	2	115	0.37	ppb	3.12	---	80 -		120	
95	Mo	2	115	1896.00	ppb	0.92	---	80 -		120	
107	Ag	2	115	18.79	ppb	1.69	20.00	80 -		120	
111	Cd	2	115	9.48	ppb	2.91	10.00	80 -		120	
118	Sn	2	115	0.33	ppb	0.79	---	80 -		120	
121	Sb	2	115	0.93	ppb	3.98	---	80 -		120	
137	Ba	2	115	0.31	ppb	4.70	---	80 -		120	
205	Tl	2	209	0.16	ppb	2.88	---	80 -		120	
208	Pb	2	209	0.23	ppb	6.31	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	2922511.00	1.08	3341086.80	87.5	60 -		120	
45	Sc	1	79166.43	0.36	77897.73	101.6	60 -		120	
45	Sc	2	5239759.50	1.11	5352738.50	97.9	60 -		120	
72	Ge	1	73072.63	0.33	73008.27	100.1	60 -		120	
115	In	2	6506396.50	0.97	6838441.00	95.1	60 -		120	
209	Bi	2	4507989.50	1.11	4754241.00	94.8	60 -		120	

CCV QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\021ICV.D\021ICV.D#

Date Acquired:	Mar 20 2014 01:49 pm	Sample Name:	**ICV1-140320**
Acq. Method:	DHL_2Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	1658.00	ppb	0.94	100.00	90 -	110	1658.0	Fail
9	Be	2	6	101.20	ppb	1.97	100.00	90 -	110	101.2	
11	B	2	6	89.64	ppb	1.65	100.00	90 -	110	89.6	Fail
23	Na	1	45	2212.00	ppb	0.15	2500.00	90 -	110	88.5	Fail
24	Mg	1	45	2303.00	ppb	0.84	2500.00	90 -	110	92.1	
27	Al	1	45	2400.00	ppb	0.43	2500.00	90 -	110	96.0	
39	K	1	45	2284.00	ppb	0.61	2500.00	90 -	110	91.4	
44	Ca	2	45	2276.00	ppb	1.59	2500.00	90 -	110	91.0	
47	Ti	1	45	95.84	ppb	3.02	100.00	90 -	110	95.8	
51	V	1	45	96.93	ppb	0.51	100.00	90 -	110	96.9	
52	Cr	1	45	100.10	ppb	0.26	100.00	90 -	110	100.1	
55	Mn	1	45	98.11	ppb	0.72	100.00	90 -	110	98.1	
56	Fe	1	72	2422.00	ppb	0.42	2500.00	90 -	110	96.9	
59	Co	1	72	100.10	ppb	0.93	100.00	90 -	110	100.1	
60	Ni	1	72	98.48	ppb	0.76	100.00	90 -	110	98.5	
63	Cu	1	72	98.65	ppb	1.38	100.00	90 -	110	98.7	
66	Zn	1	72	100.90	ppb	0.55	100.00	90 -	110	100.9	
75	As	1	72	97.09	ppb	0.29	100.00	90 -	110	97.1	
78	Se	1	72	97.15	ppb	0.46	100.00	90 -	110	97.2	
88	Sr	2	115	92.34	ppb	1.72	100.00	90 -	110	92.3	
95	Mo	2	115	91.02	ppb	1.27	100.00	90 -	110	91.0	
107	Ag	2	115	95.90	ppb	1.12	100.00	90 -	110	95.9	
111	Cd	2	115	94.37	ppb	0.40	100.00	90 -	110	94.4	
118	Sn	2	115	97.94	ppb	1.53	100.00	90 -	110	97.9	
121	Sb	2	115	94.83	ppb	1.03	100.00	90 -	110	94.8	
137	Ba	2	115	94.62	ppb	1.14	100.00	90 -	110	94.6	
205	Tl	2	209	96.05	ppb	1.71	100.00	90 -	110	96.1	
208	Pb	2	209	97.05	ppb	1.05	100.00	90 -	110	97.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	2671927.00	1.40	3341086.80	80.0	60 -	120		
45	Sc	1	76061.68	0.97	77897.73	97.6	60 -	120		
45	Sc	2	4864568.50	0.51	5352738.50	90.9	60 -	120		
72	Ge	1	71917.94	0.47	73008.27	98.5	60 -	120		
115	In	2	6585132.00	1.16	6838441.00	96.3	60 -	120		
209	Bi	2	4887335.00	0.21	4754241.00	102.8	60 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\024LCVL.D\024LCVL.D#

Date Acquired:	Mar 20 2014 02:07 pm	Sample Name:	**ILCVL-140320**
Acq. Method:	DHL_2Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	1872.00	ppb	0.21	5.00	70 -	130	######	Fail
9	Be	2	6	0.96	ppb	5.47	1.00	70 -	130	96.4	
11	B	2	6	17.55	ppb	0.45	20.00	70 -	130	87.8	
23	Na	1	45	101.10	ppb	2.18	100.00	70 -	130	101.1	
24	Mg	1	45	91.75	ppb	2.51	100.00	70 -	130	91.8	
27	Al	1	45	95.11	ppb	5.17	100.00	70 -	130	95.1	
39	K	1	45	101.90	ppb	2.90	100.00	70 -	130	101.9	
44	Ca	2	45	71.98	ppb	2.11	100.00	70 -	130	72.0	
47	Ti	1	45	5.29	ppb	22.60	5.00	70 -	130	105.8	
51	V	1	45	0.84	ppb	7.82	1.00	70 -	130	84.3	
52	Cr	1	45	4.97	ppb	2.75	5.00	70 -	130	99.5	
55	Mn	1	45	4.64	ppb	1.11	5.00	70 -	130	92.8	
56	Fe	1	72	90.63	ppb	1.07	100.00	70 -	130	90.6	
59	Co	1	72	4.65	ppb	0.29	5.00	70 -	130	93.0	
60	Ni	1	72	4.70	ppb	1.39	5.00	70 -	130	94.0	
63	Cu	1	72	4.69	ppb	1.23	5.00	70 -	130	93.8	
66	Zn	1	72	4.22	ppb	2.45	5.00	70 -	130	84.5	
75	As	1	72	4.59	ppb	0.92	5.00	70 -	130	91.8	
78	Se	1	72	4.36	ppb	4.89	5.00	70 -	130	87.2	
88	Sr	2	115	4.33	ppb	0.91	5.00	70 -	130	86.6	
95	Mo	2	115	4.52	ppb	1.68	5.00	70 -	130	90.5	
107	Ag	2	115	1.92	ppb	2.79	2.00	70 -	130	96.0	
111	Cd	2	115	0.90	ppb	6.88	1.00	70 -	130	89.7	
118	Sn	2	115	4.75	ppb	2.15	5.00	70 -	130	95.0	
121	Sb	2	115	1.85	ppb	0.75	2.00	70 -	130	92.6	
137	Ba	2	115	4.37	ppb	2.60	5.00	70 -	130	87.4	
205	Tl	2	209	1.00	ppb	4.14	1.00	70 -	130	100.1	
208	Pb	2	209	0.95	ppb	2.02	1.00	70 -	130	95.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	2498535.80	1.11	3341086.80	74.8	60 -	120		
45	Sc	1	73607.52	0.39	77897.73	94.5	60 -	120		
45	Sc	2	4634190.00	1.02	5352738.50	86.6	60 -	120		
72	Ge	1	70985.29	0.95	73008.27	97.2	60 -	120		
115	In	2	6522375.50	0.27	6838441.00	95.4	60 -	120		
209	Bi	2	4944926.50	0.39	4754241.00	104.0	60 -	120		

ICB QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\025_ICB.D\025_ICB.D#

Date Acquired:	Mar 20 2014 02:12 pm	Sample Name:	**ICB1-140320**
Acq. Method:	DHL_2Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm	Instrument:	ICPMS2

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	1885.00	ppb	0.22	5.00	Fail
9	Be	2	6	-0.01	ppb	32.75	0.80	
11	B	2	6	0.22	ppb	3.43	10.00	
23	Na	1	45	13.79	ppb	0.61	50.00	
24	Mg	1	45	-0.55	ppb	14.40	50.00	
27	Al	1	45	-0.53	ppb	11.60	30.00	
39	K	1	45	6.77	ppb	3.08	50.00	
44	Ca	2	45	-24.85	ppb	3.70	50.00	
47	Ti	1	45	-0.03	ppb	86.60	10.00	
51	V	1	45	-0.05	ppb	3.63	10.00	
52	Cr	1	45	0.04	ppb	20.74	3.00	
55	Mn	1	45	-0.07	ppb	10.18	10.00	
56	Fe	1	72	1.21	ppb	2.92	50.00	
59	Co	1	72	0.00	ppb	34.69	3.00	
60	Ni	1	72	0.00	ppb	37.09	3.00	
63	Cu	1	72	-0.06	ppb	9.65	3.00	
66	Zn	1	72	-0.17	ppb	14.06	10.00	
75	As	1	72	-0.01	ppb	0.00	10.00	
78	Se	1	72	0.06	ppb	32.52	10.00	
88	Sr	2	115	-0.08	ppb	4.13	10.00	
95	Mo	2	115	0.29	ppb	9.52	10.00	
107	Ag	2	115	0.00	ppb	18.88	2.00	
111	Cd	2	115	0.01	ppb	9.47	1.00	
118	Sn	2	115	0.04	ppb	6.55	10.00	
121	Sb	2	115	-0.01	ppb	11.78	1.00	
137	Ba	2	115	-0.01	ppb	27.25	3.00	
205	Tl	2	209	0.05	ppb	1.34	1.00	
208	Pb	2	209	0.01	ppb	6.30	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2500661.50	0.10	3341086.80	74.8	60 - 120	
45	Sc	1	71992.85	0.09	77897.73	92.4	60 - 120	
45	Sc	2	4635832.00	0.42	5352738.50	86.6	60 - 120	
72	Ge	1	70741.45	0.25	73008.27	96.9	60 - 120	
115	In	2	6566957.00	0.83	6838441.00	96.0	60 - 120	
209	Bi	2	5020611.00	0.16	4754241.00	105.6	60 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\038CCV1.D\038CCV1.D#

Date Acquired:	Mar 20 2014 03:28 pm	Sample Name:	**CCV1-140320**
Acq. Method:	DHL_2Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	3392.00	ppb	1.04	200.00	90 -	110	1696.0	Fail
9	Be	2	6	226.80	ppb	1.64	200.00	90 -	110	113.4	Fail
11	B	2	6	210.60	ppb	0.90	200.00	90 -	110	105.3	
23	Na	1	45	5000.00	ppb	0.64	5000.00	90 -	110	100.0	
24	Mg	1	45	5036.00	ppb	1.35	5000.00	90 -	110	100.7	
27	Al	1	45	5057.00	ppb	0.94	5000.00	90 -	110	101.1	
39	K	1	45	4949.00	ppb	1.56	5000.00	90 -	110	99.0	
44	Ca	2	45	5000.00	ppb	1.28	5000.00	90 -	110	100.0	
47	Ti	1	45	204.60	ppb	1.14	200.00	90 -	110	102.3	
51	V	1	45	214.60	ppb	0.26	200.00	90 -	110	107.3	
52	Cr	1	45	217.70	ppb	0.40	200.00	90 -	110	108.9	
55	Mn	1	45	214.80	ppb	0.85	200.00	90 -	110	107.4	
56	Fe	1	72	5012.00	ppb	0.77	5000.00	90 -	110	100.2	
59	Co	1	72	200.70	ppb	0.67	200.00	90 -	110	100.4	
60	Ni	1	72	199.80	ppb	0.48	200.00	90 -	110	99.9	
63	Cu	1	72	203.10	ppb	0.89	200.00	90 -	110	101.6	
66	Zn	1	72	209.30	ppb	0.22	200.00	90 -	110	104.7	
75	As	1	72	203.40	ppb	0.22	200.00	90 -	110	101.7	
78	Se	1	72	199.50	ppb	0.78	200.00	90 -	110	99.8	
88	Sr	2	115	193.40	ppb	1.27	200.00	90 -	110	96.7	
95	Mo	2	115	189.20	ppb	1.42	200.00	90 -	110	94.6	
107	Ag	2	115	205.70	ppb	2.37	200.00	90 -	110	102.9	
111	Cd	2	115	194.90	ppb	0.86	200.00	90 -	110	97.5	
118	Sn	2	115	199.00	ppb	1.44	200.00	90 -	110	99.5	
121	Sb	2	115	206.90	ppb	2.06	200.00	90 -	110	103.5	
137	Ba	2	115	201.60	ppb	2.10	200.00	90 -	110	100.8	
205	Tl	2	209	208.90	ppb	2.17	200.00	90 -	110	104.5	
208	Pb	2	209	206.40	ppb	1.57	200.00	90 -	110	103.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	1784335.00	2.29	3341086.80	53.4	60 -	120		ISFail
45	Sc	1	58627.77	0.55	77897.73	75.3	60 -	120		
45	Sc	2	3791370.80	1.04	5352738.50	70.8	60 -	120		
72	Ge	1	61207.00	0.47	73008.27	83.8	60 -	120		
115	In	2	6103163.50	0.09	6838441.00	89.2	60 -	120		
209	Bi	2	4910248.00	0.67	4754241.00	103.3	60 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\043LCVL.D\043LCVL.D#

Date Acquired:	Mar 20 2014 03:58 pm	Sample Name:	**LCVL1-140320**
Acq. Method:	DHL_2Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	3052.00	ppb	0.75	5.00	70 -	130	######	Fail
9	Be	2	6	0.96	ppb	7.12	1.00	70 -	130	96.3	
11	B	2	6	18.41	ppb	1.43	20.00	70 -	130	92.1	
23	Na	1	45	116.70	ppb	1.47	100.00	70 -	130	116.7	
24	Mg	1	45	88.65	ppb	2.45	100.00	70 -	130	88.7	
27	Al	1	45	90.02	ppb	6.87	100.00	70 -	130	90.0	
39	K	1	45	94.50	ppb	5.26	100.00	70 -	130	94.5	
44	Ca	2	45	55.65	ppb	1.49	100.00	70 -	130	55.7	Fail
47	Ti	1	45	4.72	ppb	16.09	5.00	70 -	130	94.4	
51	V	1	45	0.92	ppb	4.96	1.00	70 -	130	91.6	
52	Cr	1	45	4.91	ppb	0.79	5.00	70 -	130	98.1	
55	Mn	1	45	4.67	ppb	2.01	5.00	70 -	130	93.3	
56	Fe	1	72	84.91	ppb	0.83	100.00	70 -	130	84.9	
59	Co	1	72	4.45	ppb	2.59	5.00	70 -	130	89.0	
60	Ni	1	72	4.46	ppb	8.24	5.00	70 -	130	89.2	
63	Cu	1	72	4.51	ppb	0.90	5.00	70 -	130	90.2	
66	Zn	1	72	4.71	ppb	8.63	5.00	70 -	130	94.2	
75	As	1	72	4.55	ppb	0.45	5.00	70 -	130	90.9	
78	Se	1	72	4.33	ppb	5.11	5.00	70 -	130	86.7	
88	Sr	2	115	3.97	ppb	0.65	5.00	70 -	130	79.4	
95	Mo	2	115	4.11	ppb	0.67	5.00	70 -	130	82.2	
107	Ag	2	115	1.83	ppb	2.75	2.00	70 -	130	91.5	
111	Cd	2	115	0.88	ppb	10.62	1.00	70 -	130	88.0	
118	Sn	2	115	4.48	ppb	0.84	5.00	70 -	130	89.7	
121	Sb	2	115	2.05	ppb	2.79	2.00	70 -	130	102.4	
137	Ba	2	115	4.36	ppb	4.94	5.00	70 -	130	87.1	
205	Tl	2	209	0.93	ppb	1.23	1.00	70 -	130	93.0	
208	Pb	2	209	0.94	ppb	1.43	1.00	70 -	130	93.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	1994425.80	0.66	3341086.80	59.7	60 -	120		ISFail
45	Sc	1	63183.66	0.73	77897.73	81.1	60 -	120		
45	Sc	2	4083890.80	0.70	5352738.50	76.3	60 -	120		
72	Ge	1	64438.65	1.01	73008.27	88.3	60 -	120		
115	In	2	6400033.00	0.68	6838441.00	93.6	60 -	120		
209	Bi	2	5193987.00	1.08	4754241.00	109.2	60 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\046_CCB.D\046_CCB.D#

Date Acquired:	Mar 20 2014 04:15 pm	Sample Name:	**CCB1-140320**
Acq. Method:	DHL_2Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	2741.000	ppb	0.62	2.00	2.00	Failsoil
9	Be	2	6	-0.017	ppb	30.47	0.10	0.30	
11	B	2	6	-0.047	ppb	1.73	10.00	10.00	
23	Na	1	45	29.450	ppb	0.83	50.00	#####	
24	Mg	1	45	-2.120	ppb	23.74	50.00	#####	
27	Al	1	45	-2.917	ppb	11.95	50.00	10.00	
39	K	1	45	8.341	ppb	0.81	50.00	#####	
44	Ca	2	45	-32.600	ppb	1.10	50.00	#####	
47	Ti	1	45	-0.022	ppb	173.25	4.00	3.00	
51	V	1	45	-0.013	ppb	18.36	4.00	3.00	
52	Cr	1	45	0.028	ppb	7.39	2.00	2.00	
55	Mn	1	45	-0.033	ppb	17.96	2.00	3.00	
56	Fe	1	72	0.171	ppb	2.22	50.00	50.00	
59	Co	1	72	-0.002	ppb	16.59	2.00	3.00	
60	Ni	1	72	-0.010	ppb	20.35	2.00	3.00	
63	Cu	1	72	-0.046	ppb	5.27	2.00	2.00	
66	Zn	1	72	-0.066	ppb	12.71	4.00	2.00	
75	As	1	72	-0.024	ppb	7.92	2.00	2.00	
78	Se	1	72	-0.204	ppb	8.18	0.60	2.00	
88	Sr	2	115	-0.107	ppb	1.12	4.00	3.00	
95	Mo	2	115	0.024	ppb	0.58	2.00	2.00	
107	Ag	2	115	0.010	ppb	1.89	0.40	1.00	
111	Cd	2	115	0.029	ppb	39.07	0.40	0.30	
118	Sn	2	115	-0.011	ppb	12.28	4.00	3.00	
121	Sb	2	115	0.104	ppb	5.36	2.00	0.80	
137	Ba	2	115	-0.004	ppb	13.89	2.00	3.00	
205	Tl	2	209	0.021	ppb	8.41	2.00	0.50	
208	Pb	2	209	0.023	ppb	6.30	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2059513.80	0.88	3341086.80	61.6	60 - 120	
45	Sc	1	64711.23	0.44	77897.73	83.1	60 - 120	
45	Sc	2	4131849.30	0.90	5352738.50	77.2	60 - 120	
72	Ge	1	65222.55	0.64	73008.27	89.3	60 - 120	
115	In	2	6265212.00	0.64	6838441.00	91.6	60 - 120	
209	Bi	2	5076587.00	0.86	4754241.00	106.8	60 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\047__PB.D\047__PB.D#

Date Acquired:	Mar 20 2014 04:39 pm	Sample Name:	**MB-62377**
Acq. Method:	DHL_2Fe.M	Misc Info:	MBLK6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm	Auto Dil:	Undiluted
Instrument:	ICPMS2	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	2624.000	ppb	1.30	2.0	5.00	Fail
9	Be	2	6	-0.028	ppb	14.32	0.3	0.80	
11	B	2	6	0.330	ppb	3.36	10.0	30.00	
23	Na	1	45	26.670	ppb	1.50	100.0	#####	
24	Mg	1	45	-1.858	ppb	21.22	100.0	#####	
27	Al	1	45	0.115	ppb	13.78	10.0	30.00	
39	K	1	45	6.189	ppb	2.23	100.0	#####	
44	Ca	2	45	-19.470	ppb	1.89	100.0	#####	
47	Ti	1	45	0.061	ppb	86.62	3.0	10.00	
51	V	1	45	0.016	ppb	9.12	3.0	10.00	
52	Cr	1	45	0.017	ppb	14.82	2.0	5.00	
55	Mn	1	45	0.037	ppb	10.18	3.0	10.00	
56	Fe	1	72	0.233	ppb	4.87	50.0	#####	
59	Co	1	72	-0.007	ppb	3.70	3.0	10.00	
60	Ni	1	72	0.039	ppb	13.03	3.0	10.00	
63	Cu	1	72	0.092	ppb	10.55	2.0	10.00	
66	Zn	1	72	2.432	ppb	9.06	2.0	5.00	J
75	As	1	72	-0.035	ppb	10.08	2.0	5.00	
78	Se	1	72	-0.097	ppb	19.93	2.0	5.00	
88	Sr	2	115	-0.075	ppb	3.58	3.0	10.00	
95	Mo	2	115	-0.027	ppb	13.19	2.0	5.00	
107	Ag	2	115	0.007	ppb	14.94	1.0	2.00	
111	Cd	2	115	0.009	ppb	41.02	0.3	1.00	
118	Sn	2	115	0.011	ppb	18.12	3.0	10.00	
121	Sb	2	115	0.074	ppb	3.59	0.8	2.50	
137	Ba	2	115	0.025	ppb	13.61	3.0	10.00	
205	Tl	2	209	-0.004	ppb	15.68	0.5	1.50	
208	Pb	2	209	0.011	ppb	3.43	0.3	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2126220.50	0.04	3341086.80	63.6	60 - 120	
45	Sc	1	66688.17	0.66	77897.73	85.6	60 - 120	
45	Sc	2	4213946.50	0.13	5352738.50	78.7	60 - 120	
72	Ge	1	66808.49	0.48	73008.27	91.5	60 - 120	
115	In	2	6364370.50	1.13	6838441.00	93.1	60 - 120	
209	Bi	2	5087061.00	0.58	4754241.00	107.0	60 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\048_LCS.D\048_LCS.D#

Date Acquired:	Mar 20 2014 04:45 pm	Sample Name:	**LCS-62377**
Acq. Method:	DHL_2Fe.M	Misc Info:	LCS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm	Auto Dil:	Undiluted
Instrument:	ICPMS2	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	2743.00	ppb	0.44	200.00	80 -	120	1371.5	Fail
9	Be	2	6	206.70	ppb	0.89	200.00	80 -	120	103.4	
11	B	2	6	188.60	ppb	0.27	200.00	80 -	120	94.3	
23	Na	1	45	4594.00	ppb	0.07	5000.00	80 -	120	91.9	
24	Mg	1	45	4643.00	ppb	0.46	5000.00	80 -	120	92.9	
27	Al	1	45	4755.00	ppb	0.93	5000.00	80 -	120	95.1	
39	K	1	45	4685.00	ppb	1.26	5000.00	80 -	120	93.7	
44	Ca	2	45	4622.00	ppb	1.14	5000.00	80 -	120	92.4	
47	Ti	1	45	193.30	ppb	1.62	200.00	80 -	120	96.7	
51	V	1	45	193.80	ppb	0.77	200.00	80 -	120	96.9	
52	Cr	1	45	197.30	ppb	0.55	200.00	80 -	120	98.7	
55	Mn	1	45	197.60	ppb	0.86	200.00	80 -	120	98.8	
56	Fe	1	72	4646.00	ppb	1.13	5000.00	80 -	120	92.9	
59	Co	1	72	188.50	ppb	0.46	200.00	80 -	120	94.3	
60	Ni	1	72	188.60	ppb	0.58	200.00	80 -	120	94.3	
63	Cu	1	72	192.80	ppb	0.38	200.00	80 -	120	96.4	
66	Zn	1	72	204.50	ppb	0.68	200.00	80 -	120	102.3	
75	As	1	72	193.40	ppb	0.27	200.00	80 -	120	96.7	
78	Se	1	72	194.20	ppb	1.42	200.00	80 -	120	97.1	
88	Sr	2	115	188.90	ppb	1.54	200.00	80 -	120	94.5	
95	Mo	2	115	181.00	ppb	1.21	200.00	80 -	120	90.5	
107	Ag	2	115	191.70	ppb	0.82	200.00	80 -	120	95.9	
111	Cd	2	115	188.00	ppb	1.16	200.00	80 -	120	94.0	
118	Sn	2	115	187.20	ppb	1.57	200.00	80 -	120	93.6	
121	Sb	2	115	191.10	ppb	1.80	200.00	80 -	120	95.6	
137	Ba	2	115	190.80	ppb	1.18	200.00	80 -	120	95.4	
205	Tl	2	209	196.50	ppb	1.21	200.00	80 -	120	98.3	
208	Pb	2	209	192.40	ppb	1.23	200.00	80 -	120	96.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	2113162.80	0.62	3341086.80	63.2	60 -	120		
45	Sc	1	65894.06	1.21	77897.73	84.6	60 -	120		
45	Sc	2	4211344.50	0.74	5352738.50	78.7	60 -	120		
72	Ge	1	65225.53	0.44	73008.27	89.3	60 -	120		
115	In	2	6197133.50	1.01	6838441.00	90.6	60 -	120		
209	Bi	2	4980299.50	0.89	4754241.00	104.8	60 -	120		

LCS QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\049_LCS.D\049_LCS.D#

Date Acquired:	Mar 20 2014 04:51 pm	Sample Name:	**LCSD-62377**
Acq. Method:	DHL_2Fe.M	Misc Info:	LCSD6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm	Auto Dil:	Undiluted
Instrument:	ICPMS2	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	2380.00	ppb	1.18	200.00	80 -	120	1190.0	Fail
9	Be	2	6	197.30	ppb	1.10	200.00	80 -	120	98.7	
11	B	2	6	180.00	ppb	0.76	200.00	80 -	120	90.0	
23	Na	1	45	4476.00	ppb	0.37	5000.00	80 -	120	89.5	
24	Mg	1	45	4561.00	ppb	1.02	5000.00	80 -	120	91.2	
27	Al	1	45	4604.00	ppb	1.11	5000.00	80 -	120	92.1	
39	K	1	45	4602.00	ppb	0.76	5000.00	80 -	120	92.0	
44	Ca	2	45	4507.00	ppb	1.05	5000.00	80 -	120	90.1	
47	Ti	1	45	183.70	ppb	1.04	200.00	80 -	120	91.9	
51	V	1	45	187.50	ppb	0.36	200.00	80 -	120	93.8	
52	Cr	1	45	189.90	ppb	0.59	200.00	80 -	120	95.0	
55	Mn	1	45	190.50	ppb	0.09	200.00	80 -	120	95.3	
56	Fe	1	72	4511.00	ppb	0.06	5000.00	80 -	120	90.2	
59	Co	1	72	181.40	ppb	0.44	200.00	80 -	120	90.7	
60	Ni	1	72	181.40	ppb	0.24	200.00	80 -	120	90.7	
63	Cu	1	72	184.70	ppb	0.35	200.00	80 -	120	92.4	
66	Zn	1	72	190.70	ppb	0.76	200.00	80 -	120	95.4	
75	As	1	72	186.20	ppb	0.46	200.00	80 -	120	93.1	
78	Se	1	72	191.70	ppb	1.26	200.00	80 -	120	95.9	
88	Sr	2	115	184.00	ppb	1.38	200.00	80 -	120	92.0	
95	Mo	2	115	174.70	ppb	0.38	200.00	80 -	120	87.4	
107	Ag	2	115	186.80	ppb	0.99	200.00	80 -	120	93.4	
111	Cd	2	115	180.00	ppb	1.48	200.00	80 -	120	90.0	
118	Sn	2	115	181.40	ppb	1.68	200.00	80 -	120	90.7	
121	Sb	2	115	185.10	ppb	1.58	200.00	80 -	120	92.6	
137	Ba	2	115	185.00	ppb	1.72	200.00	80 -	120	92.5	
205	Tl	2	209	192.40	ppb	1.23	200.00	80 -	120	96.2	
208	Pb	2	209	188.50	ppb	0.93	200.00	80 -	120	94.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	2265034.00	0.52	3341086.80	67.8	60 -	120	
45	Sc	1	69546.23	0.43	77897.73	89.3	60 -	120	
45	Sc	2	4365568.50	0.38	5352738.50	81.6	60 -	120	
72	Ge	1	68527.24	0.33	73008.27	93.9	60 -	120	
115	In	2	6428462.50	0.58	6838441.00	94.0	60 -	120	
209	Bi	2	5069229.50	0.44	4754241.00	106.6	60 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\053AREF.D\053AREF.D#

Date Acquired:	Mar 20 2014 05:15 pm	Sample Name:	**1403158-04A**
Acq. Method:	DHL_2Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	-7800.000	ppb	0.87	500.00	
9	Be	2	6	-0.027	ppb	22.05	2000.00	
11	B	2	6	736.000	ppb	1.14	500.00	OUTCAL
23	Na	1	45	34650.000	ppb	1.63	25000.00	OUTCAL
24	Mg	1	45	8576.000	ppb	1.72	25000.00	>RL
27	Al	1	45	6.750	ppb	3.80	10000.00	
39	K	1	45	9190.000	ppb	1.68	25000.00	>RL
44	Ca	2	45	143300.000	ppb	1.63	25000.00	OUTCAL
47	Ti	1	45	0.012	ppb	99.97	500.00	
51	V	1	45	0.307	ppb	12.63	2000.00	
52	Cr	1	45	0.117	ppb	4.08	2000.00	
55	Mn	1	45	8.341	ppb	0.97	2000.00	>RL
56	Fe	1	72	1.450	ppb	1.59	10000.00	
59	Co	1	72	0.026	ppb	7.93	2000.00	
60	Ni	1	72	0.469	ppb	5.57	2000.00	
63	Cu	1	72	0.210	ppb	9.19	2000.00	
66	Zn	1	72	43.150	ppb	0.80	2000.00	>RL
75	As	1	72	0.568	ppb	6.31	2000.00	
78	Se	1	72	1.730	ppb	2.91	2000.00	J
88	Sr	2	115	744.000	ppb	0.28	500.00	OUTCAL
95	Mo	2	115	0.406	ppb	6.81	500.00	
107	Ag	2	115	0.002	ppb	14.53	500.00	
111	Cd	2	115	0.074	ppb	25.91	2000.00	
118	Sn	2	115	0.009	ppb	15.64	500.00	
121	Sb	2	115	1.518	ppb	6.91	500.00	
137	Ba	2	115	91.520	ppb	1.38	2000.00	>RL
205	Tl	2	209	0.015	ppb	11.66	500.00	
208	Pb	2	209	0.033	ppb	4.22	2000.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2320422.30	0.22	3341086.80	69.5	60 - 120	
45	Sc	1	69400.82	1.73	77897.73	89.1	60 - 120	
45	Sc	2	4516114.50	1.23	5352738.50	84.4	60 - 120	
72	Ge	1	67970.17	0.83	73008.27	93.1	60 - 120	
115	In	2	6390482.00	0.67	6838441.00	93.4	60 - 120	
209	Bi	2	4890563.50	0.93	4754241.00	102.9	60 - 120	

DT QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\054DT1.D\054DT1.D#

Date Acquired:	Mar 20 2014 05:21 pm	Sample Name:	**1403158-04A SD**
Acq. Method:	DHL_2Fe.M	Misc Info:	SD 6020A_W
Operator:	SW	Bench Diln:	5.00
Last Cal. Update:	Mar 20 2014 01:11 pm	Auto Diln:	Undiluted
Instrument:	ICPMS2	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	316.10	ppb	0.79	#########	90 - 110	0.1	
9	Be	2	6	-0.04	ppb	18.33	-0.03	90 - 110	698.7	
11	B	2	6	148.30	ppb	0.96	736.00	90 - 110	100.7	GOOD
23	Na	1	45	6839.00	ppb	0.80	34650.00	90 - 110	98.7	GOOD
24	Mg	1	45	1712.00	ppb	0.66	8576.00	90 - 110	99.8	GOOD
27	Al	1	45	0.13	ppb	2.24	6.75	90 - 110	9.6	
39	K	1	45	1786.00	ppb	1.02	9190.00	90 - 110	97.2	GOOD
44	Ca	2	45	28830.00	ppb	0.89	143300.00	90 - 110	100.6	GOOD
47	Ti	1	45	-0.03	ppb	173.25	0.01	90 - 110	######	
51	V	1	45	0.01	ppb	4.17	0.31	90 - 110	18.2	
52	Cr	1	45	0.04	ppb	10.02	0.12	90 - 110	163.9	
55	Mn	1	45	1.75	ppb	2.33	8.34	90 - 110	104.8	GOOD
56	Fe	1	72	-0.29	ppb	6.02	1.45	90 - 110	-99.2	
59	Co	1	72	0.00	ppb	11.66	0.03	90 - 110	0.2	
60	Ni	1	72	0.09	ppb	10.26	0.47	90 - 110	98.3	GOOD
63	Cu	1	72	0.01	ppb	4.42	0.21	90 - 110	13.2	
66	Zn	1	72	8.36	ppb	4.44	43.15	90 - 110	96.9	GOOD
75	As	1	72	0.07	ppb	11.39	0.57	90 - 110	61.3	
78	Se	1	72	0.39	ppb	11.08	1.73	90 - 110	111.5	
88	Sr	2	115	151.20	ppb	2.64	744.00	90 - 110	101.6	GOOD
95	Mo	2	115	0.06	ppb	4.49	0.41	90 - 110	73.8	
107	Ag	2	115	0.00	ppb	22.08	0.00	90 - 110	-948.3	
111	Cd	2	115	0.01	ppb	11.98	0.07	90 - 110	52.5	
118	Sn	2	115	-0.02	ppb	7.91	0.01	90 - 110	######	
121	Sb	2	115	0.33	ppb	8.11	1.52	90 - 110	107.2	GOOD
137	Ba	2	115	18.37	ppb	1.70	91.52	90 - 110	100.4	GOOD
205	Tl	2	209	0.00	ppb	4.91	0.02	90 - 110	125.9	
208	Pb	2	209	0.00	ppb	5.30	0.03	90 - 110	-35.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2330472.00	0.65	3341086.80	69.8	60 - 120	
45	Sc	1	71112.95	0.48	77897.73	91.3	60 - 120	
45	Sc	2	4453170.50	0.32	5352738.50	83.2	60 - 120	
72	Ge	1	70278.88	1.04	73008.27	96.3	60 - 120	
115	In	2	6466103.00	1.35	6838441.00	94.6	60 - 120	
209	Bi	2	5014056.00	0.85	4754241.00	105.5	60 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\055SMPL.D\055SMPL.D#

Date Acquired:	Mar 20 2014 05:26 pm	Sample Name:	**1403158-01A**
Acq. Method:	DHL_2Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	-4517.000	ppb	0.61	500.00	ND
9	Be	2	6	-0.034	ppb	53.07	2000.00	ND
11	B	2	6	286.400	ppb	1.19	500.00	>RL
23	Na	1	45	60930.000	ppb	0.31	25000.00	OUTCAL
24	Mg	1	45	9258.000	ppb	0.70	25000.00	>RL
27	Al	1	45	30.010	ppb	3.85	10000.00	>RL
39	K	1	45	4995.000	ppb	1.20	25000.00	>RL
44	Ca	2	45	175000.000	ppb	0.84	25000.00	OUTCAL
47	Ti	1	45	0.343	ppb	15.75	500.00	ND
51	V	1	45	2.608	ppb	2.58	2000.00	ND
52	Cr	1	45	0.103	ppb	1.13	2000.00	ND
55	Mn	1	45	6.133	ppb	2.60	2000.00	J
56	Fe	1	72	29.920	ppb	1.13	10000.00	ND
59	Co	1	72	0.184	ppb	7.10	2000.00	ND
60	Ni	1	72	2.476	ppb	4.89	2000.00	ND
63	Cu	1	72	0.716	ppb	2.29	2000.00	ND
66	Zn	1	72	78.050	ppb	0.89	2000.00	>RL
75	As	1	72	2.046	ppb	4.37	2000.00	J
78	Se	1	72	101.300	ppb	0.25	2000.00	>RL
88	Sr	2	115	733.700	ppb	2.10	500.00	OUTCAL
95	Mo	2	115	4.244	ppb	4.65	500.00	J
107	Ag	2	115	-0.001	ppb	26.39	500.00	ND
111	Cd	2	115	0.169	ppb	7.15	2000.00	ND
118	Sn	2	115	1.286	ppb	3.39	500.00	ND
121	Sb	2	115	1.525	ppb	1.31	500.00	J
137	Ba	2	115	38.690	ppb	1.88	2000.00	>RL
205	Tl	2	209	0.028	ppb	3.29	500.00	ND
208	Pb	2	209	0.669	ppb	2.36	2000.00	J

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2353718.00	0.79	3341086.80	70.4	60 - 120	
45	Sc	1	69835.58	0.18	77897.73	89.7	60 - 120	
45	Sc	2	4530947.50	1.00	5352738.50	84.6	60 - 120	
72	Ge	1	67075.01	0.19	73008.27	91.9	60 - 120	
115	In	2	6224403.50	0.58	6838441.00	91.0	60 - 120	
209	Bi	2	4629601.00	1.54	4754241.00	97.4	60 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\056SMPL.D\056SMPL.D#

Date Acquired:	Mar 20 2014 05:32 pm	Sample Name:	**1403158-02A**
Acq. Method:	DHL_2Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	-38720.000	ppb	0.66	500.00	ND
9	Be	2	6	-0.024	ppb	45.41	2000.00	ND
11	B	2	6	1008.000	ppb	2.09	500.00	OUTCAL
23	Na	1	45	82880.000	ppb	1.53	25000.00	OUTCAL
24	Mg	1	45	18470.000	ppb	1.94	25000.00	>RL
27	Al	1	45	21.800	ppb	2.74	10000.00	J
39	K	1	45	3514.000	ppb	1.87	25000.00	>RL
44	Ca	2	45	155400.000	ppb	0.52	25000.00	OUTCAL
47	Ti	1	45	0.313	ppb	56.78	500.00	ND
51	V	1	45	0.760	ppb	6.67	2000.00	ND
52	Cr	1	45	0.113	ppb	9.31	2000.00	ND
55	Mn	1	45	76.820	ppb	0.34	2000.00	>RL
56	Fe	1	72	141.500	ppb	0.70	10000.00	>RL
59	Co	1	72	0.589	ppb	1.96	2000.00	ND
60	Ni	1	72	1.325	ppb	9.38	2000.00	ND
63	Cu	1	72	0.498	ppb	4.38	2000.00	ND
66	Zn	1	72	35.940	ppb	1.93	2000.00	>RL
75	As	1	72	1.151	ppb	5.52	2000.00	ND
78	Se	1	72	0.131	ppb	10.54	2000.00	ND
88	Sr	2	115	2367.000	ppb	1.38	500.00	OUTCAL
95	Mo	2	115	1.042	ppb	4.53	500.00	ND
107	Ag	2	115	0.007	ppb	4.14	500.00	ND
111	Cd	2	115	0.004	ppb	32.45	2000.00	ND
118	Sn	2	115	0.943	ppb	4.71	500.00	ND
121	Sb	2	115	0.318	ppb	3.38	500.00	ND
137	Ba	2	115	31.540	ppb	0.22	2000.00	>RL
205	Tl	2	209	0.013	ppb	4.14	500.00	ND
208	Pb	2	209	0.372	ppb	4.14	2000.00	J

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2589755.50	0.23	3341086.80	77.5	60 - 120	
45	Sc	1	74400.06	1.59	77897.73	95.5	60 - 120	
45	Sc	2	4807631.00	0.46	5352738.50	89.8	60 - 120	
72	Ge	1	71072.01	2.06	73008.27	97.3	60 - 120	
115	In	2	6393550.50	0.55	6838441.00	93.5	60 - 120	
209	Bi	2	4665244.50	0.16	4754241.00	98.1	60 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\057SMPL.D\057SMPL.D#

Date Acquired:	Mar 20 2014 05:38 pm	Sample Name:	**1403158-03A**
Acq. Method:	DHL_2Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	-6043.000	ppb	1.20	500.00	ND
9	Be	2	6	-0.016	ppb	30.30	2000.00	ND
11	B	2	6	178.200	ppb	0.21	500.00	>RL
23	Na	1	45	41880.000	ppb	2.88	25000.00	OUTCAL
24	Mg	1	45	8019.000	ppb	2.33	25000.00	>RL
27	Al	1	45	40.790	ppb	7.23	10000.00	>RL
39	K	1	45	7877.000	ppb	2.17	25000.00	>RL
44	Ca	2	45	176400.000	ppb	0.73	25000.00	OUTCAL
47	Ti	1	45	1.017	ppb	49.66	500.00	ND
51	V	1	45	4.123	ppb	4.34	2000.00	J
52	Cr	1	45	0.115	ppb	8.10	2000.00	ND
55	Mn	1	45	1.994	ppb	3.02	2000.00	ND
56	Fe	1	72	30.420	ppb	0.62	10000.00	ND
59	Co	1	72	0.073	ppb	16.77	2000.00	ND
60	Ni	1	72	0.584	ppb	10.21	2000.00	ND
63	Cu	1	72	0.156	ppb	6.73	2000.00	ND
66	Zn	1	72	26.700	ppb	0.44	2000.00	>RL
75	As	1	72	1.429	ppb	1.91	2000.00	ND
78	Se	1	72	92.450	ppb	2.72	2000.00	>RL
88	Sr	2	115	431.800	ppb	1.52	500.00	>RL
95	Mo	2	115	3.830	ppb	1.12	500.00	J
107	Ag	2	115	-0.004	ppb	8.33	500.00	ND
111	Cd	2	115	0.008	ppb	22.08	2000.00	ND
118	Sn	2	115	0.002	ppb	0.73	500.00	ND
121	Sb	2	115	0.282	ppb	1.31	500.00	ND
137	Ba	2	115	48.680	ppb	1.70	2000.00	>RL
205	Tl	2	209	-0.001	ppb	9.02	500.00	ND
208	Pb	2	209	0.100	ppb	8.34	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2840167.80	0.14	3341086.80	85.0	60 - 120	
45	Sc	1	79178.73	2.51	77897.73	101.6	60 - 120	
45	Sc	2	5181958.50	0.55	5352738.50	96.8	60 - 120	
72	Ge	1	74086.56	0.94	73008.27	101.5	60 - 120	
115	In	2	6688322.00	0.40	6838441.00	97.8	60 - 120	
209	Bi	2	4831817.50	1.40	4754241.00	101.6	60 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\058SMPL.D\058SMPL.D#

Date Acquired:	Mar 20 2014 05:44 pm	Sample Name:	**1403158-05A**
Acq. Method:	DHL_2Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	-2302.000	ppb	0.19	500.00	ND
9	Be	2	6	-0.033	ppb	11.46	2000.00	ND
11	B	2	6	166.600	ppb	1.25	500.00	>RL
23	Na	1	45	56070.000	ppb	0.82	25000.00	OUTCAL
24	Mg	1	45	13790.000	ppb	0.82	25000.00	>RL
27	Al	1	45	27.800	ppb	9.95	10000.00	J
39	K	1	45	5611.000	ppb	1.15	25000.00	>RL
44	Ca	2	45	122200.000	ppb	2.44	25000.00	OUTCAL
47	Ti	1	45	0.235	ppb	69.28	500.00	ND
51	V	1	45	4.015	ppb	2.92	2000.00	J
52	Cr	1	45	0.008	ppb	3.23	2000.00	ND
55	Mn	1	45	0.398	ppb	12.25	2000.00	ND
56	Fe	1	72	14.640	ppb	2.78	10000.00	ND
59	Co	1	72	0.039	ppb	10.15	2000.00	ND
60	Ni	1	72	0.648	ppb	8.99	2000.00	ND
63	Cu	1	72	0.097	ppb	5.03	2000.00	ND
66	Zn	1	72	2.131	ppb	6.31	2000.00	J
75	As	1	72	1.202	ppb	2.58	2000.00	ND
78	Se	1	72	13.290	ppb	2.91	2000.00	>RL
88	Sr	2	115	684.800	ppb	0.33	500.00	OUTCAL
95	Mo	2	115	0.709	ppb	1.44	500.00	ND
107	Ag	2	115	-0.003	ppb	11.75	500.00	ND
111	Cd	2	115	-0.021	ppb	39.89	2000.00	ND
118	Sn	2	115	-0.047	ppb	10.50	500.00	ND
121	Sb	2	115	1.219	ppb	0.80	500.00	J
137	Ba	2	115	105.700	ppb	1.75	2000.00	>RL
205	Tl	2	209	-0.002	ppb	9.23	500.00	ND
208	Pb	2	209	0.031	ppb	4.30	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3057399.00	0.53	3341086.80	91.5	60 - 120	
45	Sc	1	83573.20	0.77	77897.73	107.3	60 - 120	
45	Sc	2	5448606.50	1.91	5352738.50	101.8	60 - 120	
72	Ge	1	77200.02	2.18	73008.27	105.7	60 - 120	
115	In	2	6885330.00	0.28	6838441.00	100.7	60 - 120	
209	Bi	2	4874784.50	1.07	4754241.00	102.5	60 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\059SMPL.D\059SMPL.D#

Date Acquired:	Mar 20 2014 05:50 pm	Sample Name:	**1403158-06A**
Acq. Method:	DHL_2Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	-3379.000	ppb	0.95	500.00	ND
9	Be	2	6	-0.020	ppb	22.94	2000.00	ND
11	B	2	6	184.900	ppb	1.30	500.00	>RL
23	Na	1	45	63570.000	ppb	1.01	25000.00	OUTCAL
24	Mg	1	45	11710.000	ppb	0.31	25000.00	>RL
27	Al	1	45	181.800	ppb	4.64	10000.00	>RL
39	K	1	45	4669.000	ppb	0.56	25000.00	>RL
44	Ca	2	45	129200.000	ppb	2.24	25000.00	OUTCAL
47	Ti	1	45	3.412	ppb	24.01	500.00	J
51	V	1	45	6.726	ppb	1.01	2000.00	J
52	Cr	1	45	0.207	ppb	5.29	2000.00	ND
55	Mn	1	45	159.600	ppb	0.80	2000.00	>RL
56	Fe	1	72	767.800	ppb	0.69	10000.00	>RL
59	Co	1	72	0.653	ppb	0.63	2000.00	ND
60	Ni	1	72	1.150	ppb	3.28	2000.00	ND
63	Cu	1	72	1.509	ppb	1.56	2000.00	ND
66	Zn	1	72	43.150	ppb	0.39	2000.00	>RL
75	As	1	72	11.920	ppb	0.24	2000.00	>RL
78	Se	1	72	23.180	ppb	1.25	2000.00	>RL
88	Sr	2	115	537.800	ppb	1.06	500.00	OUTCAL
95	Mo	2	115	0.374	ppb	3.37	500.00	ND
107	Ag	2	115	0.014	ppb	8.93	500.00	ND
111	Cd	2	115	0.096	ppb	5.29	2000.00	ND
118	Sn	2	115	0.067	ppb	9.72	500.00	ND
121	Sb	2	115	12.850	ppb	1.45	500.00	>RL
137	Ba	2	115	96.160	ppb	2.15	2000.00	>RL
205	Tl	2	209	-0.005	ppb	20.77	500.00	ND
208	Pb	2	209	0.962	ppb	1.07	2000.00	J

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3079680.30	0.51	3341086.80	92.2	60 - 120	
45	Sc	1	82604.73	0.15	77897.73	106.0	60 - 120	
45	Sc	2	5269365.00	1.32	5352738.50	98.4	60 - 120	
72	Ge	1	75875.72	0.65	73008.27	103.9	60 - 120	
115	In	2	6624728.50	1.14	6838441.00	96.9	60 - 120	
209	Bi	2	4652683.50	0.40	4754241.00	97.9	60 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\060SMPL.D\060SMPL.D#

Date Acquired:	Mar 20 2014 05:56 pm	Sample Name:	**1403158-07A**
Acq. Method:	DHL_2Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	-25100.000	ppb	0.87	500.00	ND
9	Be	2	6	0.002	ppb	16.62	2000.00	ND
11	B	2	6	389.600	ppb	0.68	500.00	>RL
23	Na	1	45	189200.000	ppb	2.36	25000.00	OUTCAL
24	Mg	1	45	22850.000	ppb	2.29	25000.00	>RL
27	Al	1	45	641.500	ppb	2.92	10000.00	>RL
39	K	1	45	4820.000	ppb	2.47	25000.00	>RL
44	Ca	2	45	271600.000	ppb	1.13	25000.00	OUTCAL
47	Ti	1	45	15.790	ppb	18.14	500.00	>RL
51	V	1	45	1.748	ppb	4.01	2000.00	ND
52	Cr	1	45	0.875	ppb	3.50	2000.00	ND
55	Mn	1	45	84.040	ppb	1.65	2000.00	>RL
56	Fe	1	72	451.800	ppb	2.24	10000.00	>RL
59	Co	1	72	3.035	ppb	2.17	2000.00	J
60	Ni	1	72	8.075	ppb	3.07	2000.00	J
63	Cu	1	72	0.494	ppb	1.27	2000.00	ND
66	Zn	1	72	9.101	ppb	3.70	2000.00	>RL
75	As	1	72	1.792	ppb	3.82	2000.00	ND
78	Se	1	72	1.362	ppb	9.09	2000.00	ND
88	Sr	2	115	2167.000	ppb	1.94	500.00	OUTCAL
95	Mo	2	115	1.070	ppb	2.58	500.00	ND
107	Ag	2	115	-0.006	ppb	13.21	500.00	ND
111	Cd	2	115	0.038	ppb	11.23	2000.00	ND
118	Sn	2	115	0.023	ppb	5.55	500.00	ND
121	Sb	2	115	0.751	ppb	2.86	500.00	ND
137	Ba	2	115	37.220	ppb	2.22	2000.00	>RL
205	Tl	2	209	0.026	ppb	4.76	500.00	ND
208	Pb	2	209	1.153	ppb	1.63	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3138449.00	1.47	3341086.80	93.9	60 - 120	
45	Sc	1	80855.16	2.03	77897.73	103.8	60 - 120	
45	Sc	2	5317162.00	0.94	5352738.50	99.3	60 - 120	
72	Ge	1	73142.33	2.93	73008.27	100.2	60 - 120	
115	In	2	6443598.50	1.60	6838441.00	94.2	60 - 120	
209	Bi	2	4381126.00	0.97	4754241.00	92.2	60 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\061SMPL.D\061SMPL.D#

Date Acquired:	Mar 20 2014 06:02 pm	Sample Name:	**1403158-08A**
Acq. Method:	DHL_2Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	-4811.000	ppb	0.62	500.00	ND
9	Be	2	6	0.002	ppb	8.66	2000.00	ND
11	B	2	6	215.200	ppb	0.56	500.00	>RL
23	Na	1	45	50530.000	ppb	1.55	25000.00	OUTCAL
24	Mg	1	45	8091.000	ppb	1.14	25000.00	>RL
27	Al	1	45	620.700	ppb	0.66	10000.00	>RL
39	K	1	45	4072.000	ppb	2.19	25000.00	>RL
44	Ca	2	45	209800.000	ppb	1.11	25000.00	OUTCAL
47	Ti	1	45	11.730	ppb	28.48	500.00	>RL
51	V	1	45	6.819	ppb	3.74	2000.00	J
52	Cr	1	45	0.620	ppb	5.85	2000.00	ND
55	Mn	1	45	63.400	ppb	1.56	2000.00	>RL
56	Fe	1	72	392.200	ppb	1.59	10000.00	>RL
59	Co	1	72	0.540	ppb	5.71	2000.00	ND
60	Ni	1	72	0.889	ppb	10.49	2000.00	ND
63	Cu	1	72	1.589	ppb	2.12	2000.00	ND
66	Zn	1	72	9.879	ppb	3.27	2000.00	>RL
75	As	1	72	2.097	ppb	1.64	2000.00	J
78	Se	1	72	50.240	ppb	3.06	2000.00	>RL
88	Sr	2	115	469.400	ppb	1.93	500.00	>RL
95	Mo	2	115	17.530	ppb	3.10	500.00	>RL
107	Ag	2	115	-0.002	ppb	20.15	500.00	ND
111	Cd	2	115	0.055	ppb	13.89	2000.00	ND
118	Sn	2	115	0.086	ppb	9.37	500.00	ND
121	Sb	2	115	56.190	ppb	0.33	500.00	>RL
137	Ba	2	115	40.240	ppb	2.19	2000.00	>RL
205	Tl	2	209	0.003	ppb	8.43	500.00	ND
208	Pb	2	209	1.765	ppb	0.68	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3500374.00	1.52	3341086.80	104.8	60 - 120	
45	Sc	1	89742.81	2.01	77897.73	115.2	60 - 120	
45	Sc	2	5753230.50	1.87	5352738.50	107.5	60 - 120	
72	Ge	1	80492.05	1.07	73008.27	110.3	60 - 120	
115	In	2	6989498.00	0.57	6838441.00	102.2	60 - 120	
209	Bi	2	4744059.50	0.86	4754241.00	99.8	60 - 120	

PDS QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\062_PDS.D\062_PDS.D#

Date Acquired:	Mar 20 2014 06:07 pm	Sample Name:	**1403158-04A PDS**
Acq. Method:	DHL_2Fe.M	Misc Info:	PDS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm	Auto Diln:	Undiluted
Instrument:	ICPMS2	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	-11510.00	ppb	1.20	#########	200	75-125	######	Fail
9	Be	2	6	175.80	ppb	0.59	-0.03	200	75-125	87.9	
11	B	2	6	894.50	ppb	1.39	736.00	200	75-125	79.3	
23	Na	1	45	36930.00	ppb	2.01	34650.00	5000	75-125	45.6	Fail
24	Mg	1	45	12750.00	ppb	1.74	8576.00	5000	75-125	83.5	
27	Al	1	45	4830.00	ppb	1.30	6.75	5000	75-125	96.5	
39	K	1	45	13710.00	ppb	0.87	9190.00	5000	75-125	90.4	
44	Ca	2	45	142500.00	ppb	1.61	143300.00	5000	75-125	-16.0	Fail
47	Ti	1	45	176.10	ppb	1.02	0.01	200	75-125	88.0	
51	V	1	45	172.20	ppb	1.84	0.31	200	75-125	85.9	
52	Cr	1	45	172.40	ppb	0.62	0.12	200	75-125	86.1	
55	Mn	1	45	184.50	ppb	1.55	8.34	200	75-125	88.1	
56	Fe	1	72	4504.00	ppb	0.85	1.45	5000	75-125	90.1	
59	Co	1	72	176.20	ppb	1.10	0.03	200	75-125	88.1	
60	Ni	1	72	170.00	ppb	0.19	0.47	200	75-125	84.8	
63	Cu	1	72	166.10	ppb	0.67	0.21	200	75-125	82.9	
66	Zn	1	72	208.80	ppb	0.63	43.15	200	75-125	82.8	
75	As	1	72	178.90	ppb	1.21	0.57	200	75-125	89.2	
78	Se	1	72	189.10	ppb	1.23	1.73	200	75-125	93.7	
88	Sr	2	115	941.50	ppb	0.49	744.00	200	75-125	98.8	
95	Mo	2	115	173.90	ppb	0.93	0.41	200	75-125	86.7	
107	Ag	2	115	169.40	ppb	2.67	0.00	200	75-125	84.7	
111	Cd	2	115	172.70	ppb	1.26	0.07	200	75-125	86.3	
118	Sn	2	115	183.90	ppb	0.88	0.01	200	75-125	91.9	
121	Sb	2	115	179.60	ppb	1.11	1.52	200	75-125	89.0	
137	Ba	2	115	264.80	ppb	1.15	91.52	200	75-125	86.6	
205	Tl	2	209	187.20	ppb	1.35	0.02	200	75-125	93.6	
208	Pb	2	209	184.50	ppb	1.37	0.03	200	75-125	92.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3720947.50	1.85	3341086.80	111.4	60 - 120	
45	Sc	1	96396.71	0.29	77897.73	123.7	60 - 120	ISFail
45	Sc	2	5990258.00	0.35	5352738.50	111.9	60 - 120	
72	Ge	1	85426.70	0.28	73008.27	117.0	60 - 120	
115	In	2	7163115.50	1.00	6838441.00	104.7	60 - 120	
209	Bi	2	4892412.50	0.99	4754241.00	102.9	60 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\063_MS.D\063_MS.D#

Date Acquired:	Mar 20 2014 06:13 pm	Sample Name:	**1403158-04A MS**
Acq. Method:	DHL_2Fe.M	Misc Info:	MS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm	Auto Diln:	Undiluted
Instrument:	ICPMS2	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	-11780.00	ppb	0.84	########	200	80-120	######	Fail
9	Be	2	6	186.80	ppb	1.02	-0.03	200	80-120	93.4	
11	B	2	6	958.10	ppb	1.92	736.00	200	80-120	111.1	
23	Na	1	45	38680.00	ppb	1.91	34650.00	5000	80-120	80.6	
24	Mg	1	45	13370.00	ppb	0.50	8576.00	5000	80-120	95.9	
27	Al	1	45	5075.00	ppb	0.30	6.75	5000	80-120	101.4	
39	K	1	45	14410.00	ppb	0.62	9190.00	5000	80-120	104.4	
44	Ca	2	45	149700.00	ppb	0.46	########	5000	80-120	128.0	Fail
47	Ti	1	45	195.20	ppb	2.98	0.01	200	80-120	97.6	
51	V	1	45	188.80	ppb	0.13	0.31	200	80-120	94.2	
52	Cr	1	45	183.90	ppb	0.58	0.12	200	80-120	91.9	
55	Mn	1	45	199.30	ppb	0.60	8.34	200	80-120	95.5	
56	Fe	1	72	4768.00	ppb	0.49	1.45	5000	80-120	95.3	
59	Co	1	72	186.10	ppb	0.42	0.03	200	80-120	93.0	
60	Ni	1	72	180.30	ppb	0.36	0.47	200	80-120	89.9	
63	Cu	1	72	178.20	ppb	0.31	0.21	200	80-120	89.0	
66	Zn	1	72	226.80	ppb	0.67	43.15	200	80-120	91.8	
75	As	1	72	194.40	ppb	0.23	0.57	200	80-120	96.9	
78	Se	1	72	199.20	ppb	2.51	1.73	200	80-120	98.7	
88	Sr	2	115	982.50	ppb	0.95	744.00	200	80-120	119.3	
95	Mo	2	115	193.00	ppb	1.55	0.41	200	80-120	96.3	
107	Ag	2	115	186.80	ppb	0.30	0.00	200	80-120	93.4	
111	Cd	2	115	184.00	ppb	0.45	0.07	200	80-120	92.0	
118	Sn	2	115	190.70	ppb	0.64	0.01	200	80-120	95.3	
121	Sb	2	115	191.40	ppb	0.50	1.52	200	80-120	94.9	
137	Ba	2	115	279.40	ppb	0.76	91.52	200	80-120	93.9	
205	Tl	2	209	201.30	ppb	0.54	0.02	200	80-120	100.6	
208	Pb	2	209	196.00	ppb	0.98	0.03	200	80-120	98.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3729836.50	0.15	3341086.80	111.6	60 - 120	
45	Sc	1	92521.87	0.29	77897.73	118.8	60 - 120	
45	Sc	2	6008613.50	0.52	5352738.50	112.3	60 - 120	
72	Ge	1	83189.60	0.34	73008.27	113.9	60 - 120	
115	In	2	7227240.50	0.66	6838441.00	105.7	60 - 120	
209	Bi	2	4868048.50	0.70	4754241.00	102.4	60 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\064_MS.D\064_MS.D#

Date Acquired:	Mar 20 2014 06:19 pm	Sample Name:	**1403158-04A MSD**
Acq. Method:	DHL_2Fe.M	Misc Info:	MSD 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm	Auto Diln:	Undiluted
Instrument:	ICPMS2	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	-11820.00	ppb	1.21	########	200	80-120	######	Fail
9	Be	2	6	186.90	ppb	2.18	-0.03	200	80-120	93.5	
11	B	2	6	949.40	ppb	1.35	736.00	200	80-120	106.7	
23	Na	1	45	38760.00	ppb	0.24	34650.00	5000	80-120	82.2	
24	Mg	1	45	13420.00	ppb	0.36	8576.00	5000	80-120	96.9	
27	Al	1	45	5113.00	ppb	1.17	6.75	5000	80-120	102.1	
39	K	1	45	14380.00	ppb	0.82	9190.00	5000	80-120	103.8	
44	Ca	2	45	147600.00	ppb	0.93	########	5000	80-120	86.0	
47	Ti	1	45	191.50	ppb	3.39	0.01	200	80-120	95.7	
51	V	1	45	191.00	ppb	0.46	0.31	200	80-120	95.3	
52	Cr	1	45	186.70	ppb	0.52	0.12	200	80-120	93.3	
55	Mn	1	45	197.80	ppb	0.54	8.34	200	80-120	94.7	
56	Fe	1	72	4800.00	ppb	0.65	1.45	5000	80-120	96.0	
59	Co	1	72	187.90	ppb	0.11	0.03	200	80-120	93.9	
60	Ni	1	72	182.10	ppb	1.16	0.47	200	80-120	90.8	
63	Cu	1	72	179.10	ppb	0.84	0.21	200	80-120	89.4	
66	Zn	1	72	227.20	ppb	0.90	43.15	200	80-120	92.0	
75	As	1	72	196.20	ppb	0.60	0.57	200	80-120	97.8	
78	Se	1	72	201.10	ppb	1.93	1.73	200	80-120	99.7	
88	Sr	2	115	978.20	ppb	1.40	744.00	200	80-120	117.1	
95	Mo	2	115	193.00	ppb	1.03	0.41	200	80-120	96.3	
107	Ag	2	115	188.60	ppb	2.02	0.00	200	80-120	94.3	
111	Cd	2	115	183.70	ppb	1.74	0.07	200	80-120	91.8	
118	Sn	2	115	190.80	ppb	1.98	0.01	200	80-120	95.4	
121	Sb	2	115	192.80	ppb	1.35	1.52	200	80-120	95.6	
137	Ba	2	115	279.60	ppb	1.59	91.52	200	80-120	94.0	
205	Tl	2	209	201.80	ppb	1.65	0.02	200	80-120	100.9	
208	Pb	2	209	195.20	ppb	1.57	0.03	200	80-120	97.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3676171.50	0.82	3341086.80	110.0	60 - 120	
45	Sc	1	92517.65	0.67	77897.73	118.8	60 - 120	
45	Sc	2	5952297.50	0.97	5352738.50	111.2	60 - 120	
72	Ge	1	82645.20	0.56	73008.27	113.2	60 - 120	
115	In	2	7110755.00	2.50	6838441.00	104.0	60 - 120	
209	Bi	2	4780055.00	0.32	4754241.00	100.5	60 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\065CCV1.D\065CCV1.D#

Date Acquired:	Mar 20 2014 06:25 pm	Sample Name:	**CCV2-140320**
Acq. Method:	DHL_2Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	-33.85	ppb	1.22	200.00	90 -	110	-16.9	Fail
9	Be	2	6	194.20	ppb	1.16	200.00	90 -	110	97.1	
11	B	2	6	196.40	ppb	1.26	200.00	90 -	110	98.2	
23	Na	1	45	4958.00	ppb	0.69	5000.00	90 -	110	99.2	
24	Mg	1	45	5186.00	ppb	0.77	5000.00	90 -	110	103.7	
27	Al	1	45	5536.00	ppb	1.22	5000.00	90 -	110	110.7	Fail
39	K	1	45	5305.00	ppb	0.53	5000.00	90 -	110	106.1	
44	Ca	2	45	5229.00	ppb	0.75	5000.00	90 -	110	104.6	
47	Ti	1	45	199.20	ppb	1.60	200.00	90 -	110	99.6	
51	V	1	45	199.30	ppb	0.81	200.00	90 -	110	99.7	
52	Cr	1	45	199.30	ppb	0.60	200.00	90 -	110	99.7	
55	Mn	1	45	203.30	ppb	1.24	200.00	90 -	110	101.7	
56	Fe	1	72	5233.00	ppb	2.01	5000.00	90 -	110	104.7	
59	Co	1	72	201.90	ppb	0.80	200.00	90 -	110	101.0	
60	Ni	1	72	198.30	ppb	1.35	200.00	90 -	110	99.2	
63	Cu	1	72	197.70	ppb	1.40	200.00	90 -	110	98.9	
66	Zn	1	72	205.90	ppb	1.18	200.00	90 -	110	103.0	
75	As	1	72	201.60	ppb	0.48	200.00	90 -	110	100.8	
78	Se	1	72	209.30	ppb	0.49	200.00	90 -	110	104.7	
88	Sr	2	115	211.10	ppb	1.27	200.00	90 -	110	105.6	
95	Mo	2	115	200.50	ppb	1.60	200.00	90 -	110	100.3	
107	Ag	2	115	209.50	ppb	0.99	200.00	90 -	110	104.8	
111	Cd	2	115	194.20	ppb	0.32	200.00	90 -	110	97.1	
118	Sn	2	115	197.20	ppb	1.52	200.00	90 -	110	98.6	
121	Sb	2	115	203.10	ppb	1.70	200.00	90 -	110	101.6	
137	Ba	2	115	196.60	ppb	1.65	200.00	90 -	110	98.3	
205	Tl	2	209	210.30	ppb	1.48	200.00	90 -	110	105.2	
208	Pb	2	209	204.70	ppb	1.17	200.00	90 -	110	102.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3736589.00	1.17	3341086.80	111.8	60 -	120		
45	Sc	1	91337.13	0.58	77897.73	117.3	60 -	120		
45	Sc	2	5928781.50	0.76	5352738.50	110.8	60 -	120		
72	Ge	1	82566.37	0.55	73008.27	113.1	60 -	120		
115	In	2	7242126.50	0.76	6838441.00	105.9	60 -	120		
209	Bi	2	4979980.50	0.23	4754241.00	104.7	60 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\071LCVL.D\071LCVL.D#

Date Acquired:	Mar 20 2014 06:59 pm	Sample Name:	**LCVL2-140320**
Acq. Method:	DHL_2Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	371.90	ppb	1.03	5.00	70 -	130	7438.0	Fail
9	Be	2	6	0.89	ppb	4.35	1.00	70 -	130	89.0	
11	B	2	6	19.38	ppb	1.49	20.00	70 -	130	96.9	
23	Na	1	45	27.93	ppb	1.38	100.00	70 -	130	27.9	Fail
24	Mg	1	45	87.65	ppb	1.07	100.00	70 -	130	87.7	
27	Al	1	45	95.06	ppb	4.01	100.00	70 -	130	95.1	
39	K	1	45	90.98	ppb	2.04	100.00	70 -	130	91.0	
44	Ca	2	45	62.68	ppb	0.88	100.00	70 -	130	62.7	Fail
47	Ti	1	45	4.63	ppb	4.06	5.00	70 -	130	92.6	
51	V	1	45	0.86	ppb	5.32	1.00	70 -	130	86.3	
52	Cr	1	45	4.36	ppb	2.44	5.00	70 -	130	87.2	
55	Mn	1	45	4.62	ppb	1.52	5.00	70 -	130	92.3	
56	Fe	1	72	91.55	ppb	0.29	100.00	70 -	130	91.6	
59	Co	1	72	4.56	ppb	2.43	5.00	70 -	130	91.1	
60	Ni	1	72	4.56	ppb	0.50	5.00	70 -	130	91.1	
63	Cu	1	72	4.55	ppb	1.35	5.00	70 -	130	91.0	
66	Zn	1	72	4.26	ppb	2.88	5.00	70 -	130	85.2	
75	As	1	72	4.48	ppb	1.17	5.00	70 -	130	89.5	
78	Se	1	72	4.96	ppb	1.23	5.00	70 -	130	99.1	
88	Sr	2	115	4.46	ppb	2.02	5.00	70 -	130	89.2	
95	Mo	2	115	4.36	ppb	1.33	5.00	70 -	130	87.1	
107	Ag	2	115	1.95	ppb	0.27	2.00	70 -	130	97.6	
111	Cd	2	115	0.92	ppb	4.52	1.00	70 -	130	91.9	
118	Sn	2	115	4.72	ppb	0.92	5.00	70 -	130	94.4	
121	Sb	2	115	2.03	ppb	1.41	2.00	70 -	130	101.4	
137	Ba	2	115	4.45	ppb	2.03	5.00	70 -	130	89.0	
205	Tl	2	209	1.00	ppb	1.93	1.00	70 -	130	99.8	
208	Pb	2	209	0.97	ppb	3.36	1.00	70 -	130	96.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3605270.00	1.47	3341086.80	107.9	60 -		120	
45	Sc	1	93564.97	0.45	77897.73	120.1	60 -		120	ISFail
45	Sc	2	5993946.00	0.68	5352738.50	112.0	60 -		120	
72	Ge	1	84426.46	0.22	73008.27	115.6	60 -		120	
115	In	2	7337468.00	0.80	6838441.00	107.3	60 -		120	
209	Bi	2	5129602.50	0.66	4754241.00	107.9	60 -		120	

CCB QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\073_CCB.D\073_CCB.D#

Date Acquired:	Mar 20 2014 07:11 pm	Sample Name:	**CCB2-140320**
Acq. Method:	DHL_2Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	560.700	ppb	0.32	2.00	2.00	Failsoil
9	Be	2	6	-0.023	ppb	12.60	0.10	0.30	
11	B	2	6	0.218	ppb	2.61	10.00	10.00	
23	Na	1	45	-67.230	ppb	0.63	50.00	#####	
24	Mg	1	45	-4.424	ppb	5.71	50.00	#####	
27	Al	1	45	-3.007	ppb	18.45	50.00	10.00	
39	K	1	45	1.050	ppb	2.50	50.00	#####	
44	Ca	2	45	-30.880	ppb	2.23	50.00	#####	
47	Ti	1	45	0.007	ppb	86.62	4.00	3.00	
51	V	1	45	0.007	ppb	8.52	4.00	3.00	
52	Cr	1	45	-0.079	ppb	12.60	2.00	2.00	
55	Mn	1	45	-0.096	ppb	44.32	2.00	3.00	
56	Fe	1	72	-1.173	ppb	6.41	50.00	50.00	
59	Co	1	72	-0.001	ppb	16.59	2.00	3.00	
60	Ni	1	72	-0.001	ppb	31.23	2.00	3.00	
63	Cu	1	72	-0.071	ppb	13.46	2.00	2.00	
66	Zn	1	72	-0.154	ppb	2.91	4.00	2.00	
75	As	1	72	-0.017	ppb	6.01	2.00	2.00	
78	Se	1	72	-0.060	ppb	19.01	0.60	2.00	
88	Sr	2	115	-0.120	ppb	2.50	4.00	3.00	
95	Mo	2	115	-0.009	ppb	1.03	2.00	2.00	
107	Ag	2	115	0.003	ppb	8.65	0.40	1.00	
111	Cd	2	115	-0.013	ppb	23.84	0.40	0.30	
118	Sn	2	115	-0.028	ppb	6.19	4.00	3.00	
121	Sb	2	115	0.054	ppb	5.20	2.00	0.80	
137	Ba	2	115	-0.030	ppb	17.80	2.00	3.00	
205	Tl	2	209	0.011	ppb	8.01	2.00	0.50	
208	Pb	2	209	-0.008	ppb	12.18	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3665242.80	0.23	3341086.80	109.7	60 - 120	
45	Sc	1	97662.59	0.62	77897.73	125.4	60 - 120	ISFail
45	Sc	2	6110763.50	0.52	5352738.50	114.2	60 - 120	
72	Ge	1	87710.90	0.36	73008.27	120.1	60 - 120	ISFail
115	In	2	7540960.50	0.37	6838441.00	110.3	60 - 120	
209	Bi	2	5283260.00	1.26	4754241.00	111.1	60 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\074SMPL.D\074SMPL.D#

Date Acquired:	Mar 20 2014 07:17 pm	Sample Name:	**1403158-09A**
Acq. Method:	DHL_2Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	-1449.000	ppb	0.52	500.00	ND
9	Be	2	6	0.009	ppb	8.41	2000.00	ND
11	B	2	6	45.370	ppb	3.20	500.00	>RL
23	Na	1	45	8623.000	ppb	0.47	25000.00	>RL
24	Mg	1	45	2139.000	ppb	0.62	25000.00	>RL
27	Al	1	45	1004.000	ppb	2.43	10000.00	>RL
39	K	1	45	912.600	ppb	1.39	25000.00	>RL
44	Ca	2	45	51690.000	ppb	1.24	25000.00	OUTCAL
47	Ti	1	45	42.790	ppb	38.51	500.00	>RL
51	V	1	45	2.413	ppb	2.77	2000.00	ND
52	Cr	1	45	1.299	ppb	1.67	2000.00	ND
55	Mn	1	45	38.890	ppb	0.77	2000.00	>RL
56	Fe	1	72	625.300	ppb	0.41	10000.00	>RL
59	Co	1	72	1.073	ppb	3.53	2000.00	ND
60	Ni	1	72	1.245	ppb	3.76	2000.00	ND
63	Cu	1	72	1.476	ppb	3.42	2000.00	ND
66	Zn	1	72	5.889	ppb	2.83	2000.00	>RL
75	As	1	72	16.850	ppb	2.23	2000.00	>RL
78	Se	1	72	6.708	ppb	4.85	2000.00	>RL
88	Sr	2	115	229.000	ppb	1.19	500.00	>RL
95	Mo	2	115	3.087	ppb	1.05	500.00	J
107	Ag	2	115	0.009	ppb	16.41	500.00	ND
111	Cd	2	115	0.254	ppb	15.93	2000.00	ND
118	Sn	2	115	0.128	ppb	4.26	500.00	ND
121	Sb	2	115	5.857	ppb	3.08	500.00	>RL
137	Ba	2	115	8.504	ppb	2.10	2000.00	J
205	Tl	2	209	0.031	ppb	6.93	500.00	ND
208	Pb	2	209	1.120	ppb	3.51	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3475043.50	0.43	3341086.80	104.0	60 - 120	
45	Sc	1	91670.21	1.06	77897.73	117.7	60 - 120	
45	Sc	2	5931997.50	0.84	5352738.50	110.8	60 - 120	
72	Ge	1	84132.95	0.11	73008.27	115.2	60 - 120	
115	In	2	7330972.50	1.01	6838441.00	107.2	60 - 120	
209	Bi	2	5077464.00	0.59	4754241.00	106.8	60 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\075SMPL.D\075SMPL.D#

Date Acquired:	Mar 20 2014 07:23 pm	Sample Name:	**1403158-10A**
Acq. Method:	DHL_2Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	-4289.000	ppb	0.70	500.00	ND
9	Be	2	6	-0.038	ppb	13.09	2000.00	ND
11	B	2	6	510.700	ppb	3.36	500.00	OUTCAL
23	Na	1	45	18830.000	ppb	1.18	25000.00	>RL
24	Mg	1	45	7684.000	ppb	1.24	25000.00	>RL
27	Al	1	45	23.200	ppb	3.14	10000.00	J
39	K	1	45	11300.000	ppb	1.36	25000.00	>RL
44	Ca	2	45	140800.000	ppb	3.19	25000.00	OUTCAL
47	Ti	1	45	0.274	ppb	66.15	500.00	ND
51	V	1	45	12.690	ppb	1.72	2000.00	>RL
52	Cr	1	45	0.096	ppb	10.86	2000.00	ND
55	Mn	1	45	0.458	ppb	0.34	2000.00	ND
56	Fe	1	72	10.550	ppb	1.56	10000.00	ND
59	Co	1	72	0.021	ppb	8.98	2000.00	ND
60	Ni	1	72	0.297	ppb	3.99	2000.00	ND
63	Cu	1	72	0.323	ppb	5.31	2000.00	ND
66	Zn	1	72	34.590	ppb	2.77	2000.00	>RL
75	As	1	72	89.910	ppb	1.65	2000.00	>RL
78	Se	1	72	13.340	ppb	1.84	2000.00	>RL
88	Sr	2	115	420.900	ppb	2.58	500.00	>RL
95	Mo	2	115	21.060	ppb	2.56	500.00	>RL
107	Ag	2	115	0.001	ppb	14.39	500.00	ND
111	Cd	2	115	-0.005	ppb	61.35	2000.00	ND
118	Sn	2	115	0.095	ppb	3.35	500.00	ND
121	Sb	2	115	245.100	ppb	3.13	500.00	>RL
137	Ba	2	115	66.320	ppb	2.92	2000.00	>RL
205	Tl	2	209	0.034	ppb	4.07	500.00	ND
208	Pb	2	209	0.083	ppb	2.34	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3310442.80	0.19	3341086.80	99.1	60 - 120	
45	Sc	1	90157.34	1.88	77897.73	115.7	60 - 120	
45	Sc	2	5522928.50	0.66	5352738.50	103.2	60 - 120	
72	Ge	1	82012.45	1.93	73008.27	112.3	60 - 120	
115	In	2	6876986.50	0.59	6838441.00	100.6	60 - 120	
209	Bi	2	4686798.50	0.50	4754241.00	98.6	60 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\076SMPL.D\076SMPL.D#

Date Acquired:	Mar 20 2014 07:29 pm	Sample Name:	**1403158-11A**
Acq. Method:	DHL_2Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	363.600	ppb	0.91	500.00	>RL
9	Be	2	6	-0.035	ppb	12.37	2000.00	ND
11	B	2	6	12.960	ppb	3.97	500.00	J
23	Na	1	45	-28.450	ppb	1.33	25000.00	ND
24	Mg	1	45	-2.292	ppb	9.30	25000.00	ND
27	Al	1	45	12.730	ppb	16.96	10000.00	J
39	K	1	45	5.763	ppb	4.72	25000.00	ND
44	Ca	2	45	1.591	ppb	3.41	25000.00	ND
47	Ti	1	45	0.143	ppb	21.65	500.00	ND
51	V	1	45	-0.003	ppb	10.33	2000.00	ND
52	Cr	1	45	-0.061	ppb	14.81	2000.00	ND
55	Mn	1	45	-0.011	ppb	6.28	2000.00	ND
56	Fe	1	72	4.708	ppb	1.72	10000.00	ND
59	Co	1	72	-0.014	ppb	16.97	2000.00	ND
60	Ni	1	72	0.229	ppb	12.23	2000.00	ND
63	Cu	1	72	0.161	ppb	5.88	2000.00	ND
66	Zn	1	72	3.841	ppb	9.30	2000.00	J
75	As	1	72	0.350	ppb	4.05	2000.00	ND
78	Se	1	72	-0.058	ppb	14.53	2000.00	ND
88	Sr	2	115	-0.055	ppb	3.58	500.00	ND
95	Mo	2	115	0.079	ppb	8.08	500.00	ND
107	Ag	2	115	-0.005	ppb	1.53	500.00	ND
111	Cd	2	115	-0.013	ppb	27.34	2000.00	ND
118	Sn	2	115	-0.033	ppb	12.16	500.00	ND
121	Sb	2	115	0.135	ppb	3.70	500.00	ND
137	Ba	2	115	0.000	ppb	18.33	2000.00	ND
205	Tl	2	209	-0.002	ppb	9.15	500.00	ND
208	Pb	2	209	0.012	ppb	6.91	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3489876.00	1.34	3341086.80	104.5	60 - 120	
45	Sc	1	90655.01	0.83	77897.73	116.4	60 - 120	
45	Sc	2	5765372.00	0.94	5352738.50	107.7	60 - 120	
72	Ge	1	82166.45	0.44	73008.27	112.5	60 - 120	
115	In	2	7184308.00	1.61	6838441.00	105.1	60 - 120	
209	Bi	2	5015248.00	0.59	4754241.00	105.5	60 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\077SMPL.D\077SMPL.D#

Date Acquired:	Mar 20 2014 07:35 pm	Sample Name:	**1403158-12A**
Acq. Method:	DHL_2Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	-6573.000	ppb	0.77	500.00	ND
9	Be	2	6	-0.027	ppb	31.18	2000.00	ND
11	B	2	6	118.100	ppb	0.18	500.00	>RL
23	Na	1	45	50550.000	ppb	0.60	25000.00	OUTCAL
24	Mg	1	45	6150.000	ppb	0.51	25000.00	>RL
27	Al	1	45	29.050	ppb	11.01	10000.00	J
39	K	1	45	1085.000	ppb	0.95	25000.00	>RL
44	Ca	2	45	123800.000	ppb	0.72	25000.00	OUTCAL
47	Ti	1	45	0.830	ppb	58.83	500.00	ND
51	V	1	45	1.380	ppb	0.16	2000.00	ND
52	Cr	1	45	0.009	ppb	1.84	2000.00	ND
55	Mn	1	45	2.647	ppb	4.40	2000.00	ND
56	Fe	1	72	18.780	ppb	1.95	10000.00	ND
59	Co	1	72	0.041	ppb	2.91	2000.00	ND
60	Ni	1	72	1.333	ppb	2.04	2000.00	ND
63	Cu	1	72	0.445	ppb	2.00	2000.00	ND
66	Zn	1	72	4.266	ppb	3.52	2000.00	J
75	As	1	72	0.700	ppb	4.99	2000.00	ND
78	Se	1	72	14.270	ppb	6.58	2000.00	>RL
88	Sr	2	115	650.100	ppb	0.78	500.00	OUTCAL
95	Mo	2	115	0.974	ppb	2.87	500.00	ND
107	Ag	2	115	-0.005	ppb	8.61	500.00	ND
111	Cd	2	115	0.009	ppb	56.70	2000.00	ND
118	Sn	2	115	-0.007	ppb	8.67	500.00	ND
121	Sb	2	115	0.795	ppb	2.36	500.00	ND
137	Ba	2	115	95.660	ppb	1.75	2000.00	>RL
205	Tl	2	209	0.005	ppb	5.24	500.00	ND
208	Pb	2	209	0.474	ppb	2.03	2000.00	J

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3388189.30	0.51	3341086.80	101.4	60 - 120	
45	Sc	1	88945.43	0.60	77897.73	114.2	60 - 120	
45	Sc	2	5667215.50	0.58	5352738.50	105.9	60 - 120	
72	Ge	1	80085.93	0.67	73008.27	109.7	60 - 120	
115	In	2	6974253.00	0.22	6838441.00	102.0	60 - 120	
209	Bi	2	4741882.00	0.90	4754241.00	99.7	60 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\078SMPL.D\078SMPL.D#

Date Acquired:	Mar 20 2014 07:41 pm	Sample Name:	**1403158-13A**
Acq. Method:	DHL_2Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	-2321.000	ppb	0.35	500.00	ND
9	Be	2	6	-0.024	ppb	16.47	2000.00	ND
11	B	2	6	186.600	ppb	0.47	500.00	>RL
23	Na	1	45	41760.000	ppb	2.24	25000.00	OUTCAL
24	Mg	1	45	7240.000	ppb	1.54	25000.00	>RL
27	Al	1	45	11.730	ppb	7.23	10000.00	J
39	K	1	45	3535.000	ppb	1.62	25000.00	>RL
44	Ca	2	45	119600.000	ppb	0.78	25000.00	OUTCAL
47	Ti	1	45	0.251	ppb	43.29	500.00	ND
51	V	1	45	-0.005	ppb	11.10	2000.00	ND
52	Cr	1	45	-0.068	ppb	1.92	2000.00	ND
55	Mn	1	45	865.100	ppb	1.52	2000.00	>RL
56	Fe	1	72	1649.000	ppb	1.77	10000.00	>RL
59	Co	1	72	1.263	ppb	1.04	2000.00	ND
60	Ni	1	72	1.581	ppb	7.56	2000.00	ND
63	Cu	1	72	0.380	ppb	5.82	2000.00	ND
66	Zn	1	72	2.538	ppb	8.79	2000.00	J
75	As	1	72	21.340	ppb	0.97	2000.00	>RL
78	Se	1	72	0.171	ppb	9.09	2000.00	ND
88	Sr	2	115	352.000	ppb	1.66	500.00	>RL
95	Mo	2	115	8.418	ppb	1.69	500.00	>RL
107	Ag	2	115	-0.008	ppb	11.03	500.00	ND
111	Cd	2	115	-0.005	ppb	27.69	2000.00	ND
118	Sn	2	115	-0.043	ppb	6.92	500.00	ND
121	Sb	2	115	0.951	ppb	1.29	500.00	J
137	Ba	2	115	188.200	ppb	0.92	2000.00	>RL
205	Tl	2	209	-0.001	ppb	4.62	500.00	ND
208	Pb	2	209	0.109	ppb	4.56	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3816317.50	0.69	3341086.80	114.2	60 - 120	
45	Sc	1	95196.68	1.76	77897.73	122.2	60 - 120	ISFail
45	Sc	2	6211144.50	0.71	5352738.50	116.0	60 - 120	
72	Ge	1	85045.06	1.21	73008.27	116.5	60 - 120	
115	In	2	7443461.50	0.39	6838441.00	108.8	60 - 120	
209	Bi	2	4992420.50	1.24	4754241.00	105.0	60 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\079SMPL.D\079SMPL.D#

Date Acquired:	Mar 20 2014 07:46 pm	Sample Name:	**1403158-14A**
Acq. Method:	DHL_2Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	-6348.000	ppb	1.08	500.00	ND
9	Be	2	6	-0.021	ppb	11.27	2000.00	ND
11	B	2	6	282.100	ppb	1.91	500.00	>RL
23	Na	1	45	124700.000	ppb	0.12	25000.00	OUTCAL
24	Mg	1	45	5498.000	ppb	0.22	25000.00	>RL
27	Al	1	45	94.320	ppb	1.51	10000.00	>RL
39	K	1	45	2063.000	ppb	1.04	25000.00	>RL
44	Ca	2	45	100400.000	ppb	1.65	25000.00	OUTCAL
47	Ti	1	45	2.033	ppb	29.98	500.00	ND
51	V	1	45	0.972	ppb	5.17	2000.00	ND
52	Cr	1	45	0.032	ppb	6.08	2000.00	ND
55	Mn	1	45	5.824	ppb	3.05	2000.00	J
56	Fe	1	72	63.460	ppb	1.49	10000.00	J
59	Co	1	72	0.096	ppb	5.01	2000.00	ND
60	Ni	1	72	1.061	ppb	5.36	2000.00	ND
63	Cu	1	72	1.672	ppb	1.83	2000.00	ND
66	Zn	1	72	6.945	ppb	3.85	2000.00	>RL
75	As	1	72	2.577	ppb	2.07	2000.00	J
78	Se	1	72	51.390	ppb	2.42	2000.00	>RL
88	Sr	2	115	299.800	ppb	1.02	500.00	>RL
95	Mo	2	115	57.020	ppb	1.55	500.00	>RL
107	Ag	2	115	-0.001	ppb	33.77	500.00	ND
111	Cd	2	115	-0.010	ppb	64.76	2000.00	ND
118	Sn	2	115	-0.019	ppb	13.88	500.00	ND
121	Sb	2	115	547.300	ppb	0.68	500.00	OUTCAL
137	Ba	2	115	50.370	ppb	0.48	2000.00	>RL
205	Tl	2	209	0.007	ppb	7.28	500.00	ND
208	Pb	2	209	0.155	ppb	3.39	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3721407.00	1.46	3341086.80	111.4	60 - 120	
45	Sc	1	95581.09	0.90	77897.73	122.7	60 - 120	ISFail
45	Sc	2	6195976.50	1.74	5352738.50	115.8	60 - 120	
72	Ge	1	85151.12	0.57	73008.27	116.6	60 - 120	
115	In	2	7364785.00	0.94	6838441.00	107.7	60 - 120	
209	Bi	2	4946588.50	2.08	4754241.00	104.0	60 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\080SMPL.D\080SMPL.D#

Date Acquired:	Mar 20 2014 07:52 pm	Sample Name:	**1403158-15A**
Acq. Method:	DHL_2Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	-3637.000	ppb	1.23	500.00	ND
9	Be	2	6	0.164	ppb	6.40	2000.00	ND
11	B	2	6	66.460	ppb	1.90	500.00	>RL
23	Na	1	45	56080.000	ppb	0.97	25000.00	OUTCAL
24	Mg	1	45	7149.000	ppb	0.79	25000.00	>RL
27	Al	1	45	3363.000	ppb	1.50	10000.00	>RL
39	K	1	45	2689.000	ppb	0.42	25000.00	>RL
44	Ca	2	45	193500.000	ppb	0.71	25000.00	OUTCAL
47	Ti	1	45	112.000	ppb	10.63	500.00	>RL
51	V	1	45	7.183	ppb	1.80	2000.00	J
52	Cr	1	45	5.027	ppb	3.12	2000.00	>RL
55	Mn	1	45	221.300	ppb	0.44	2000.00	>RL
56	Fe	1	72	2815.000	ppb	0.78	10000.00	>RL
59	Co	1	72	5.308	ppb	0.62	2000.00	J
60	Ni	1	72	9.344	ppb	0.45	2000.00	J
63	Cu	1	72	99.090	ppb	0.71	2000.00	>RL
66	Zn	1	72	135.200	ppb	1.37	2000.00	>RL
75	As	1	72	55.830	ppb	0.55	2000.00	>RL
78	Se	1	72	10.450	ppb	5.88	2000.00	>RL
88	Sr	2	115	364.400	ppb	1.10	500.00	>RL
95	Mo	2	115	41.620	ppb	1.23	500.00	>RL
107	Ag	2	115	0.209	ppb	5.68	500.00	ND
111	Cd	2	115	2.540	ppb	7.12	2000.00	>RL
118	Sn	2	115	1.216	ppb	3.20	500.00	ND
121	Sb	2	115	166.200	ppb	1.79	500.00	>RL
137	Ba	2	115	56.900	ppb	1.00	2000.00	>RL
205	Tl	2	209	0.072	ppb	1.79	500.00	ND
208	Pb	2	209	47.850	ppb	1.52	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3783889.50	0.61	3341086.80	113.3	60 - 120	
45	Sc	1	96002.06	0.44	77897.73	123.2	60 - 120	ISFail
45	Sc	2	6128211.50	0.82	5352738.50	114.5	60 - 120	
72	Ge	1	85246.91	0.49	73008.27	116.8	60 - 120	
115	In	2	7296536.50	0.76	6838441.00	106.7	60 - 120	
209	Bi	2	4864814.50	1.19	4754241.00	102.3	60 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\081SMPL.D\081SMPL.D#

Date Acquired:	Mar 20 2014 07:58 pm	Sample Name:	**1403158-16A**
Acq. Method:	DHL_2Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	-21120.000	ppb	0.40	500.00	ND
9	Be	2	6	-0.039	ppb	13.32	2000.00	ND
11	B	2	6	406.100	ppb	1.18	500.00	>RL
23	Na	1	45	31280.000	ppb	1.61	25000.00	OUTCAL
24	Mg	1	45	8875.000	ppb	1.06	25000.00	>RL
27	Al	1	45	10.350	ppb	4.29	10000.00	J
39	K	1	45	2260.000	ppb	1.45	25000.00	>RL
44	Ca	2	45	121500.000	ppb	1.59	25000.00	OUTCAL
47	Ti	1	45	0.151	ppb	115.47	500.00	ND
51	V	1	45	0.771	ppb	4.43	2000.00	ND
52	Cr	1	45	-0.022	ppb	7.47	2000.00	ND
55	Mn	1	45	0.917	ppb	3.00	2000.00	ND
56	Fe	1	72	9.416	ppb	1.69	10000.00	ND
59	Co	1	72	0.001	ppb	10.10	2000.00	ND
60	Ni	1	72	0.243	ppb	15.63	2000.00	ND
63	Cu	1	72	0.333	ppb	3.09	2000.00	ND
66	Zn	1	72	13.060	ppb	2.51	2000.00	>RL
75	As	1	72	0.707	ppb	4.96	2000.00	ND
78	Se	1	72	0.784	ppb	5.97	2000.00	ND
88	Sr	2	115	967.900	ppb	0.72	500.00	OUTCAL
95	Mo	2	115	0.942	ppb	4.24	500.00	ND
107	Ag	2	115	-0.005	ppb	25.75	500.00	ND
111	Cd	2	115	0.018	ppb	32.57	2000.00	ND
118	Sn	2	115	0.450	ppb	1.96	500.00	ND
121	Sb	2	115	0.482	ppb	3.87	500.00	ND
137	Ba	2	115	49.980	ppb	1.36	2000.00	>RL
205	Tl	2	209	-0.008	ppb	11.88	500.00	ND
208	Pb	2	209	0.029	ppb	5.61	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3819740.00	0.64	3341086.80	114.3	60 - 120	
45	Sc	1	98586.03	0.30	77897.73	126.6	60 - 120	ISFail
45	Sc	2	6264588.50	1.01	5352738.50	117.0	60 - 120	
72	Ge	1	88651.31	1.70	73008.27	121.4	60 - 120	ISFail
115	In	2	7502145.00	0.45	6838441.00	109.7	60 - 120	
209	Bi	2	5037807.00	1.08	4754241.00	106.0	60 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\082SMPL.D\082SMPL.D#

Date Acquired:	Mar 20 2014 08:04 pm	Sample Name:	**1403158-17A**
Acq. Method:	DHL_2Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	-1320.000	ppb	0.52	500.00	ND
9	Be	2	6	-0.029	ppb	15.53	2000.00	ND
11	B	2	6	39.000	ppb	0.72	500.00	>RL
23	Na	1	45	5731.000	ppb	0.30	25000.00	>RL
24	Mg	1	45	4711.000	ppb	0.21	25000.00	>RL
27	Al	1	45	28.010	ppb	2.52	10000.00	J
39	K	1	45	1587.000	ppb	1.34	25000.00	>RL
44	Ca	2	45	91610.000	ppb	0.41	25000.00	OUTCAL
47	Ti	1	45	0.252	ppb	26.65	500.00	ND
51	V	1	45	1.259	ppb	9.18	2000.00	ND
52	Cr	1	45	-0.042	ppb	4.09	2000.00	ND
55	Mn	1	45	7.870	ppb	2.17	2000.00	J
56	Fe	1	72	39.700	ppb	0.42	10000.00	ND
59	Co	1	72	0.105	ppb	6.53	2000.00	ND
60	Ni	1	72	0.439	ppb	5.24	2000.00	ND
63	Cu	1	72	1.055	ppb	3.43	2000.00	ND
66	Zn	1	72	1.837	ppb	3.46	2000.00	ND
75	As	1	72	1.205	ppb	1.50	2000.00	ND
78	Se	1	72	4.549	ppb	4.59	2000.00	J
88	Sr	2	115	215.100	ppb	1.01	500.00	>RL
95	Mo	2	115	9.033	ppb	0.45	500.00	>RL
107	Ag	2	115	-0.011	ppb	8.27	500.00	ND
111	Cd	2	115	0.000	ppb	43.25	2000.00	ND
118	Sn	2	115	-0.040	ppb	3.51	500.00	ND
121	Sb	2	115	210.800	ppb	0.69	500.00	>RL
137	Ba	2	115	57.870	ppb	0.68	2000.00	>RL
205	Tl	2	209	-0.004	ppb	5.39	500.00	ND
208	Pb	2	209	0.322	ppb	3.68	2000.00	J

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4058290.30	0.55	3341086.80	121.5	60 - 120	ISFail
45	Sc	1	103161.55	0.47	77897.73	132.4	60 - 120	ISFail
45	Sc	2	6545620.50	0.40	5352738.50	122.3	60 - 120	ISFail
72	Ge	1	92213.41	0.46	73008.27	126.3	60 - 120	ISFail
115	In	2	7848605.00	0.29	6838441.00	114.8	60 - 120	
209	Bi	2	5331532.00	0.55	4754241.00	112.1	60 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\083SMPL.D\083SMPL.D#

Date Acquired:	Mar 20 2014 08:10 pm	Sample Name:	**1403158-18A**
Acq. Method:	DHL_2Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	-4510.000	ppb	0.41	500.00	ND
9	Be	2	6	0.059	ppb	8.45	2000.00	ND
11	B	2	6	224.100	ppb	1.30	500.00	>RL
23	Na	1	45	24990.000	ppb	0.75	25000.00	>RL
24	Mg	1	45	5892.000	ppb	0.33	25000.00	>RL
27	Al	1	45	1941.000	ppb	1.35	10000.00	>RL
39	K	1	45	1509.000	ppb	0.40	25000.00	>RL
44	Ca	2	45	215300.000	ppb	0.84	25000.00	OUTCAL
47	Ti	1	45	53.470	ppb	1.93	500.00	>RL
51	V	1	45	6.036	ppb	0.31	2000.00	J
52	Cr	1	45	1.963	ppb	1.52	2000.00	ND
55	Mn	1	45	129.300	ppb	1.27	2000.00	>RL
56	Fe	1	72	1106.000	ppb	1.53	10000.00	>RL
59	Co	1	72	1.280	ppb	4.80	2000.00	ND
60	Ni	1	72	1.738	ppb	7.59	2000.00	ND
63	Cu	1	72	3.766	ppb	4.24	2000.00	J
66	Zn	1	72	12.610	ppb	4.45	2000.00	>RL
75	As	1	72	1.811	ppb	4.30	2000.00	ND
78	Se	1	72	19.260	ppb	1.39	2000.00	>RL
88	Sr	2	115	671.000	ppb	1.13	500.00	OUTCAL
95	Mo	2	115	0.540	ppb	5.14	500.00	ND
107	Ag	2	115	0.028	ppb	11.29	500.00	ND
111	Cd	2	115	0.258	ppb	19.47	2000.00	ND
118	Sn	2	115	0.229	ppb	3.23	500.00	ND
121	Sb	2	115	1.458	ppb	0.35	500.00	J
137	Ba	2	115	68.490	ppb	0.30	2000.00	>RL
205	Tl	2	209	0.011	ppb	5.86	500.00	ND
208	Pb	2	209	3.804	ppb	1.69	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3987929.00	0.78	3341086.80	119.4	60 - 120	
45	Sc	1	103784.54	0.40	77897.73	133.2	60 - 120	ISFail
45	Sc	2	6373184.00	0.84	5352738.50	119.1	60 - 120	
72	Ge	1	90046.49	0.96	73008.27	123.3	60 - 120	ISFail
115	In	2	7601205.50	0.63	6838441.00	111.2	60 - 120	
209	Bi	2	5062673.50	0.46	4754241.00	106.5	60 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\084CCV1.D\084CCV1.D#

Date Acquired:	Mar 20 2014 08:15 pm	Sample Name:	**CCV3-140320**
Acq. Method:	DHL_2Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	-247.20	ppb	1.15	200.00	90 -	110	-123.6	Fail
9	Be	2	6	190.50	ppb	1.30	200.00	90 -	110	95.3	
11	B	2	6	184.70	ppb	1.14	200.00	90 -	110	92.4	
23	Na	1	45	4834.00	ppb	0.56	5000.00	90 -	110	96.7	
24	Mg	1	45	5075.00	ppb	0.45	5000.00	90 -	110	101.5	
27	Al	1	45	5495.00	ppb	0.13	5000.00	90 -	110	109.9	
39	K	1	45	5254.00	ppb	0.09	5000.00	90 -	110	105.1	
44	Ca	2	45	5182.00	ppb	0.22	5000.00	90 -	110	103.6	
47	Ti	1	45	194.90	ppb	1.93	200.00	90 -	110	97.5	
51	V	1	45	191.50	ppb	0.09	200.00	90 -	110	95.8	
52	Cr	1	45	190.30	ppb	0.35	200.00	90 -	110	95.2	
55	Mn	1	45	196.40	ppb	0.75	200.00	90 -	110	98.2	
56	Fe	1	72	5154.00	ppb	0.19	5000.00	90 -	110	103.1	
59	Co	1	72	197.50	ppb	0.59	200.00	90 -	110	98.8	
60	Ni	1	72	193.30	ppb	0.25	200.00	90 -	110	96.7	
63	Cu	1	72	192.40	ppb	0.60	200.00	90 -	110	96.2	
66	Zn	1	72	202.30	ppb	0.33	200.00	90 -	110	101.2	
75	As	1	72	198.70	ppb	0.15	200.00	90 -	110	99.4	
78	Se	1	72	210.90	ppb	0.45	200.00	90 -	110	105.5	
88	Sr	2	115	209.40	ppb	0.79	200.00	90 -	110	104.7	
95	Mo	2	115	198.10	ppb	0.49	200.00	90 -	110	99.1	
107	Ag	2	115	207.50	ppb	0.84	200.00	90 -	110	103.8	
111	Cd	2	115	192.70	ppb	1.17	200.00	90 -	110	96.4	
118	Sn	2	115	197.00	ppb	0.70	200.00	90 -	110	98.5	
121	Sb	2	115	202.00	ppb	0.71	200.00	90 -	110	101.0	
137	Ba	2	115	194.90	ppb	0.97	200.00	90 -	110	97.5	
205	Tl	2	209	205.60	ppb	0.09	200.00	90 -	110	102.8	
208	Pb	2	209	202.20	ppb	0.81	200.00	90 -	110	101.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4069187.50	0.64	3341086.80	121.8	60 -	120		ISFail
45	Sc	1	101262.52	0.46	77897.73	130.0	60 -	120		ISFail
45	Sc	2	6347640.50	0.74	5352738.50	118.6	60 -	120		
72	Ge	1	88581.15	0.52	73008.27	121.3	60 -	120		ISFail
115	In	2	7607584.00	0.78	6838441.00	111.2	60 -	120		
209	Bi	2	5140841.00	0.91	4754241.00	108.1	60 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\090LCVL.D\090LCVL.D#

Date Acquired:	Mar 20 2014 08:50 pm	Sample Name:	**LCVL3-140320**
Acq. Method:	DHL_2Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	-66.67	ppb	0.63	5.00	70 -	130	######	Fail
9	Be	2	6	0.83	ppb	2.18	1.00	70 -	130	83.1	
11	B	2	6	16.36	ppb	1.11	20.00	70 -	130	81.8	
23	Na	1	45	4.15	ppb	1.34	100.00	70 -	130	4.1	Fail
24	Mg	1	45	88.85	ppb	1.73	100.00	70 -	130	88.9	
27	Al	1	45	99.25	ppb	4.16	100.00	70 -	130	99.3	
39	K	1	45	88.34	ppb	1.02	100.00	70 -	130	88.3	
44	Ca	2	45	63.37	ppb	1.55	100.00	70 -	130	63.4	Fail
47	Ti	1	45	4.46	ppb	16.70	5.00	70 -	130	89.1	
51	V	1	45	0.87	ppb	7.01	1.00	70 -	130	86.5	
52	Cr	1	45	4.38	ppb	0.69	5.00	70 -	130	87.6	
55	Mn	1	45	4.40	ppb	0.94	5.00	70 -	130	88.0	
56	Fe	1	72	87.83	ppb	0.13	100.00	70 -	130	87.8	
59	Co	1	72	4.61	ppb	0.34	5.00	70 -	130	92.1	
60	Ni	1	72	4.43	ppb	2.43	5.00	70 -	130	88.6	
63	Cu	1	72	4.36	ppb	0.77	5.00	70 -	130	87.1	
66	Zn	1	72	4.51	ppb	5.15	5.00	70 -	130	90.2	
75	As	1	72	4.50	ppb	1.34	5.00	70 -	130	90.0	
78	Se	1	72	4.72	ppb	3.34	5.00	70 -	130	94.4	
88	Sr	2	115	4.48	ppb	0.70	5.00	70 -	130	89.5	
95	Mo	2	115	4.35	ppb	3.47	5.00	70 -	130	87.1	
107	Ag	2	115	1.92	ppb	2.48	2.00	70 -	130	95.9	
111	Cd	2	115	0.95	ppb	12.49	1.00	70 -	130	95.1	
118	Sn	2	115	4.77	ppb	0.89	5.00	70 -	130	95.3	
121	Sb	2	115	1.99	ppb	1.22	2.00	70 -	130	99.3	
137	Ba	2	115	4.44	ppb	0.77	5.00	70 -	130	88.7	
205	Tl	2	209	0.94	ppb	2.85	1.00	70 -	130	93.9	
208	Pb	2	209	0.94	ppb	3.78	1.00	70 -	130	93.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4072591.30	0.24	3341086.80	121.9	60 -	120		ISFail
45	Sc	1	102828.02	0.32	77897.73	132.0	60 -	120		ISFail
45	Sc	2	6467250.00	1.67	5352738.50	120.8	60 -	120		ISFail
72	Ge	1	91450.44	0.70	73008.27	125.3	60 -	120		ISFail
115	In	2	7842860.50	1.25	6838441.00	114.7	60 -	120		
209	Bi	2	5292323.50	0.57	4754241.00	111.3	60 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14C20l01.B\092_CCB.D\092_CCB.D#

Date Acquired:	Mar 20 2014 09:02 pm	Sample Name:	**CCB3-140320**
Acq. Method:	DHL_2Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 01:11 pm		
Instrument:	ICPMS2		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	-163.500	ppb	0.62	2.00	2.00	
9	Be	2	6	-0.038	ppb	17.16	0.10	0.30	
11	B	2	6	-1.074	ppb	3.55	10.00	10.00	
23	Na	1	45	-83.950	ppb	0.66	50.00	#####	
24	Mg	1	45	-3.949	ppb	15.51	50.00	#####	
27	Al	1	45	-2.711	ppb	11.55	50.00	10.00	
39	K	1	45	-3.561	ppb	2.09	50.00	#####	
44	Ca	2	45	-31.750	ppb	4.02	50.00	#####	
47	Ti	1	45	-0.111	ppb	0.00	4.00	3.00	
51	V	1	45	0.039	ppb	5.42	4.00	3.00	
52	Cr	1	45	-0.114	ppb	5.65	2.00	2.00	
55	Mn	1	45	-0.092	ppb	16.13	2.00	3.00	
56	Fe	1	72	-1.373	ppb	5.40	50.00	50.00	
59	Co	1	72	-0.014	ppb	17.16	2.00	3.00	
60	Ni	1	72	-0.007	ppb	13.93	2.00	3.00	
63	Cu	1	72	-0.076	ppb	11.66	2.00	2.00	
66	Zn	1	72	-0.153	ppb	2.44	4.00	2.00	
75	As	1	72	-0.022	ppb	11.01	2.00	2.00	
78	Se	1	72	0.022	ppb	21.45	0.60	2.00	
88	Sr	2	115	-0.139	ppb	3.60	4.00	3.00	
95	Mo	2	115	0.006	ppb	3.71	2.00	2.00	
107	Ag	2	115	0.000	ppb	17.00	0.40	1.00	
111	Cd	2	115	0.005	ppb	24.44	0.40	0.30	
118	Sn	2	115	-0.046	ppb	1.97	4.00	3.00	
121	Sb	2	115	0.057	ppb	6.76	2.00	0.80	
137	Ba	2	115	-0.030	ppb	14.43	2.00	3.00	
205	Tl	2	209	0.008	ppb	7.78	2.00	0.50	
208	Pb	2	209	-0.014	ppb	16.95	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4092320.30	0.96	3341086.80	122.5	60 - 120	ISFail
45	Sc	1	102114.84	0.51	77897.73	131.1	60 - 120	ISFail
45	Sc	2	6456090.00	1.01	5352738.50	120.6	60 - 120	ISFail
72	Ge	1	90534.97	0.56	73008.27	124.0	60 - 120	ISFail
115	In	2	7857376.50	1.06	6838441.00	114.9	60 - 120	
209	Bi	2	5301869.50	0.90	4754241.00	111.5	60 - 120	

ICP-MS3
For

DHL Work Order
1403158

ICP-MS3_140320B
For

DHL Work Order
1403158

Lab Data Review Check List

EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS3_140320B SOP: Metals-ICP-MS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			X
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			X
P/A Factor	Before ICAL	Increasing trend	X			
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			X
ICSAB (N/A for Method 200.8)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLS and ICSA/ICSAB is N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			X
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%	X			
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%			X	
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%			X	
Lab Control Sample Dup (LCSD)	Every Batch	80-120%			X	
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)			X	
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%			X	
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)			X	
Dilution Test (SD) - RPD	Every Batch	10			X	
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)			X	

Lab Data Review Check List

EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			X
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> 5% of highest standard	X			
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality			X	X
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

TECHNICAL DIRECTOR / QA MANAGER APPROVAL SIGNATURE AND DATE STAMP:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> MDL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag data / Case narrative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

See notes in Run Log

Analyst: [signature] Date of Completion: 3/21/2014

Second-Level Review: [signature] Reviewer Date Stamp:

REVIEWED
By Evelyn Ferrero at 10:40:57 AM, 3/27/2014

DHL Analytical, Inc.

Run ID: **ICP-MS3_140320B** **Run No.:** 71877

Analytical Run Date: 3/20/2014 **InstrumentID:** ICP-MS3

Analyst: Sara Wieland

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TW	CAL	R71877	3/20/2014 10:42:00 AM		
1/20 ppb STD.	1	ICPMS_TW	CAL	R71877	3/20/2014 10:48:00 AM		
10/200 ppb STD.	1	ICPMS_TW	CAL	R71877	3/20/2014 10:54:00 AM		
50/1000 ppb STD.	1	ICPMS_TW	CAL	R71877	3/20/2014 11:00:00 AM		
100/2000 ppb STD.	1	ICPMS_TW	CAL	R71877	3/20/2014 11:06:00 AM		
250/5000 ppb STD.	1	ICPMS_TW	CAL	R71877	3/20/2014 11:12:00 AM		
500/10000 ppb STD.	1	ICPMS_TW	CAL	R71877	3/20/2014 11:18:00 AM		
2000/25000 ppb STD.	1	ICPMS_TW	CAL	R71877	3/20/2014 11:24:00 AM		
ICSA-140320	1	ICPMS_TW	ICSA	R71877	3/20/2014 11:41:00 AM		
ICSAB-140320	1	ICPMS_TW	ICSB	R71877	3/20/2014 11:47:00 AM		
ICV1-140320	1	6020A_W	ICV	R71877	3/20/2014 12:05:00 PM		
ILCVL-140320	1	6020A_W	LCVL	R71877	3/20/2014 12:24:00 PM		
ICB1-140320	1	6020A_W	ICB	R71877	3/20/2014 12:30:00 PM		
CCV2-140320	1	6020A_W	CCV	R71877	3/20/2014 5:00:00 PM		
LCVL2-140320	1	6020A_W	LCVL	R71877	3/20/2014 5:24:00 PM		
CCB2-140320	1	6020A_W	CCB	R71877	3/20/2014 5:36:00 PM		
1403158-14A	5	6020A_W	SAMP	62377	3/20/2014 6:30:00 PM		
CCV3-140320	1	6020A_W	CCV	R71877	3/20/2014 6:42:00 PM		
LCVL3-140320	1	6020A_W	LCVL	R71877	3/20/2014 7:18:00 PM		
CCB3-140320	1	6020A_W	CCB	R71877	3/20/2014 7:30:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140317	ICPMS CCV 200/5000 PPB		06/15/2014
MET-H2CAL-1403	ICPMS High Cal2 2000ppb std 8		06/15/2014
MET-HCAL-14031	ICPMS High Cal 500ppb/10ppm s		06/15/2014
MET-ICV-140130	ICPMS ICV 100 ppb		04/30/2014
MET-IS-140130	INTERNAL STANDARD 1 PPM		04/30/2014
MET-L2CAL-14031	ICPMS Low Cal2 1/20ppb std 2		06/15/2014
MET-LCAL-140317	ICPMS Low Cal 10/200ppb std 3		06/15/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		06/15/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		06/15/2014
MET-MCAL-14031	ICPMS Mid Cal 250/5000ppb std		06/15/2014
MET-PA-130501	ICPMS PA FACTOR SOLUTION		05/01/2014
MET-PDS-140307	250 PPM Naturals+Al+Fe PDS		06/05/2014
MET-PDS-140311-	10 PPM CUSTOM PDS SOLUTI		06/09/2014
MET-PDS-140311-	10 PPM Ag+Sb PDS		06/09/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		05/11/2014

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		CALBEG	Start of CALIB						
2	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
3	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
4	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
5	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
6	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
7	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
8	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		1/20 ppb STD.	CAL ICPMS_TW	Level 2				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		10/200 ppb STD.	CAL ICPMS_TW	Level 3				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		50/1000 ppb STD.	CAL ICPMS_TW	Level 4				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		100/2000 ppb STD.	CAL ICPMS_TW	Level 5				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		250/5000 ppb STD.	CAL ICPMS_TW	Level 6				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		500/10000 ppb STD.	CAL ICPMS_TW	Level 7				
15	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		2000/25000 ppb STD.	CAL ICPMS_TW	Level 8				
16	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
17	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
18		Keyword		CALEND	End of CALIB						
19		Keyword		ICSBEG	Start of ICS						
20	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-140320	ICSAICPMS_TW	1.000				
21	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-140320	ICSBICPMS_TW	1.000				
22	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
23	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
24		Keyword		ICSEND	End of ICS						
25		Keyword		SMPLBEG	Start of SMPL						

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
26	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-140320	ICV ICPMS_TW	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	2101		ICB1-140320	ICB ICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		ILCVL-140320	LCVL6020A_W	1.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		ILCVL-140320	LCVL6020A_W	1.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1105		ICB1-140320	ICB ICPMS_TW	1.000				
31	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2102		MB-62409	MBLK200.8DISS	1.000				
32	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2103		LCS-62409	LCS 200.8DISS	1.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2104		LCSD-62409	LCSD200.8DISS	1.000				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2105		1403123-01B	SAMP200.8DISS	1.000				
36	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2106		1403123-01B SD	SD 200.8DISS	5.000				
37	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2107		1403123-01B PDS	PDS 200.8DISS	1.000				
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2108		1403123-01B MS	MS 200.8DISS	1.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2109		1403123-01B MSD	MSD 200.8DISS	1.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2201		1403109-04B	SAMPICPMS_TS	50.00				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2202		1403109-04B SD	SD ICPMS_TS	250.0				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2203		1403109-02B	SAMPICPMS_TS	50.00				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2204		1403109-06B	SAMPICPMS_TS	500.0				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2205		1403109-08B	SAMPICPMS_TS	50.00				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2206		1403109-10B	SAMPICPMS_TS	250.0				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2207		1403109-12B	SAMPICPMS_TS	250.0				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2209		1403131-04B	SAMPICPMS_TW	50.00				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2210		1403131-05B	SAMPICPMS_TW	50.00				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
49	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2211		1403131-06B	SAMPICPMS_TW	50.00				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2201		1403109-04B	SAMPICPMS_TS	250.0				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2202		1403109-04B SD	SD ICPMS_TS	1.250E+03				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2208		1403109-04B PDS	PDS ICPMS_TS	250.0				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-140320	CCV ICPMS_TW	1.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB1-140320	CCB ICPMS_TW	1.000				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL1-140320	LCVL6020A_W	1.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-140320	CCB ICPMS_TW	1.000				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2301		MB-62376	MBLKICPMS_TW	1.000				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2302		LCS-62376	LCS ICPMS_TW	1.000				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2303		LCSD-62376	LCSDICPMS_TW	1.000				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2304		1403132-01B	SAMPICPMS_TW	10.00				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2305		1403132-01B SD	SD ICPMS_TW	50.00				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2306		1403132-02B	SAMPICPMS_TW	50.00				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2307		1403132-03B	SAMPICPMS_TW	50.00				
65	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2308		1403132-04B	SAMPICPMS_TW	5.000				
66	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2309		1403132-05B	SAMPICPMS_TW	50.00				
67	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2310		1403132-06B	SAMPICPMS_TW	100.0				
68	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2311		1403132-07B	SAMPICPMS_TW	50.00				
69	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2312		1403132-08B	SAMPICPMS_TW	100.0				
70	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2401		1403132-09B	SAMPICPMS_TW	100.0				
71	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2402		1403132-10B	SAMPICPMS_TW	100.0				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
72	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2403		1403132-01B PDS	PDS ICPMS_TW	10.00				
73	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2404		1403132-01B MS	MS_ICPMS_TW	10.00				
74	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2405		1403132-01B MSD	MSD ICPMS_TW	10.00				
75	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-140320	CCV ICPMS_TW	1.000				
76	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	2112		CCV2-140320	CCV ICPMS_TW	1.000				
77	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB2-140320	CCB ICPMS_TW	1.000				
78	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL2-140320	LCVL6020A_W	1.000				
79	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL2-140320	LCVL6020A_W	1.000				
80	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB2-140320	CCB ICPMS_TW	1.000				
81	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-140320	CCB ICPMS_TW	1.000				
82	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2501		1403132-02B	SAMPICPMS_TW	100.0				
83	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2406		1403132-11B	SAMPICPMS_TW	100.0				
84	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2407		1403132-12B	SAMPICPMS_TW	5.000				
85	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2408		1403132-13B	SAMPICPMS_TW	1.000				
86	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2409		1403132-14B	SAMPICPMS_TW	100.0				
87	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2410		1403141-01A	SAMPICPMS_TW	10.00				
88	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2411		1403141-02A	SAMPICPMS_TW	10.00				
89	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2412		1403141-03A	SAMPICPMS_TW	50.00				
90	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2502		1403158-14A	SAMP6020A_W	5.000				
91	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2503		1403158-15A	SAMP6020A_W	5.000				
92	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-140320	CCV ICPMS_TW	1.000				
93	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	2112		CCV3-140320	CCV ICPMS_TW	1.000				
94	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1306		CCV3-140320	CCV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
95	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB3-140320	CCB ICPMS_TW	1.000				
96	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB3-140320	CCB ICPMS_TW	1.000				
97	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL3-140320	LCVL6020A_W	1.000				
98	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL3-140320	LCVL6020A_W	1.000				
99	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB3-140320	CCB ICPMS_TW	1.000				
100	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-140320	CCB ICPMS_TW	1.000				
101		Keyword		StandBy							
102		Keyword		SMPLEND	End of SMPL						
103		Keyword		End	End of Sequence						
104		Keyword		CCVBEG	Start of CCV						
105		Keyword		CCVEND	End of CCV						
106		Keyword		BLKBEG	Start of BLANK						
107		Keyword		BLKEND	End of BLANK						
108		Keyword		ERRBEG	Start of ERRTERM						
109		Keyword		ERREND	End of ERRTERM						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **3/18/2014 10:37:20 AM**
Digestion: **Start: 3/20/2014 11:50:00 AM / Stop: 3/20/2014 4:25:00 PM**
Prep End Date: **3/20/2014 4:36:34 PM**

Prep Batch **62377** Prep Code: **3005A** Technician: **James McNeely**

Prep Factor Units: **mL/mL**

Equipment List
Thermometer #77
Hot Block #2

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1403121-02D	Equip Blank		50	50	1.000	1 of 1
1403121-15D	Equip Blank		50	50	1.000	1 of 1
1403158-01A	Aqueous		50	50	1.000	1 of 1
1403158-02A	Aqueous		50	50	1.000	1 of 1
1403158-03A	Aqueous		50	50	1.000	1 of 1
1403158-04A	Aqueous		50	50	1.000	1 of 1
1403158-04A MS	Aqueous		50	50	1.000	of
1403158-04A MSD	Aqueous		50	50	1.000	of
1403158-04A PDS	Aqueous		50	50	1.000	of
1403158-04A SD	Aqueous		50	50	1.000	of
1403158-05A	Aqueous		50	50	1.000	1 of 1
1403158-06A	Aqueous		50	50	1.000	1 of 1
1403158-07A	Aqueous		50	50	1.000	1 of 1
1403158-08A	Aqueous		50	50	1.000	1 of 1
1403158-09A	Aqueous		50	50	1.000	1 of 1
1403158-10A	Aqueous		50	50	1.000	1 of 1
1403158-11A	Equip Blank		50	50	1.000	1 of 1
1403158-12A	Aqueous		50	50	1.000	1 of 1
1403158-13A	Aqueous		50	50	1.000	1 of 1
1403158-14A	Aqueous		50	50	1.000	1 of 1
1403158-15A	Aqueous		50	50	1.000	1 of 1
1403158-16A	Aqueous		50	50	1.000	1 of 1
1403158-17A	Aqueous		50	50	1.000	of 3
1403158-18A	Aqueous		50	50	1.000	1 of 1
LCS-62377	Aqueous		50	50	1.000	of
LCSD-62377	Aqueous		50	50	1.000	of
MB-62377	Aqueous		50	50	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
7646	Digestion Vessels	69	ml	06/21/2014
7683	HCL (Trace Grade)	1	ml	08/09/2016
7684	Nitric Acid (Trace Metal Grade)	1	ml	08/07/2015

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-140109-01	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/06/2015
MET-140109-02	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/10/2015
MET-SPIKE-140303	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	04/03/2014
MET-SPIKE-140313-01	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MS	0.2	04/13/2014
MET-SPIKE-140313-02	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	04/13/2014

Calibration Summary Report

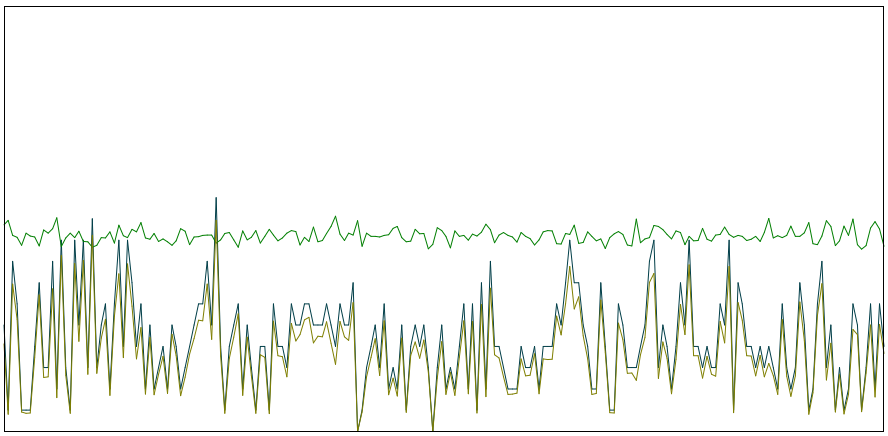
Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3Fe.C
Last Update: Mar 20 2014 11:27 am
Cal Type: Y=aX+[blank]

Standard	Date Acquired	File
BLANK STD 1	Mar 20 2014 10:42 am	c:\icpchem\1\data\14c20k00.b\007calb.d\
1/20 ppb STD.	Mar 20 2014 10:48 am	c:\icpchem\1\data\14c20k00.b\008cals.d\
10/200 ppb STD.	Mar 20 2014 10:54 am	c:\icpchem\1\data\14c20k00.b\009cals.d\
50/1000 ppb STD.	Mar 20 2014 11:00 am	c:\icpchem\1\data\14c20k00.b\010cals.d\
100/2000 ppb STD.	Mar 20 2014 11:06 am	c:\icpchem\1\data\14c20k00.b\011cals.d\
250/5000 ppb STD.	Mar 20 2014 11:12 am	c:\icpchem\1\data\14c20k00.b\012cals.d\

Element Name	Corr Coef	Coef A	Coef B	Lvl 2	Lvl 6	Lvl 7	L7 %R	Lvl 8	L8 %R
Li	-0.4737	2.505E-005	13.81	2425.00	11,120	7833		-1884	
Be	0.9998	0.09116	0.00252	0.99	257	495	99%	--------	######
B	0.9998	0.06633	0.1781	1.25	257	537	107%	1,989	99%
Na	1.0000	0.3132	10.91	22.89	4,802	9,920	99%	25,080	100%
Mg	0.9997	0.1412	0.399	21.24	4,736	9,527	95%	25,250	101%
Al	0.9999	0.03328	0.09157	21.33	4,917	10,040	100%	--------	######
K	0.9998	0.0636	4.901	18.51	4,763	9,663	97%	25,190	101%
Ca	1.0000	0.008395	0.2013	16.22	4,950	9,932	99%	25,040	100%
Ti	1.0000	0.02856	0.003472	1.04	252	508	102%	1,998	100%
V	1.0000	1.348	0.2153	1.01	239	486	97%	2,005	100%
Cr	1.0000	1.742	0.2647	1.01	241	490	98%	2,004	100%
Mn	1.0000	0.6261	0.03622	1.14	251	504	101%	1,999	100%
Fe	1.0000	2.045	2.709	20.76	5,020	9,975	100%	--------	######
Co	1.0000	5.246	0.03472	1.04	246	499	100%	2,001	100%
Ni	1.0000	1.51	0.1265	1.06	253	509	102%	1,997	100%
Cu	1.0000	4.274	2.236	0.70	250	501	100%	2,000	100%
Zn	1.0000	0.3556	0.705	0.97	256	507	101%	1,997	100%
As	1.0000	0.1961	0.02579	1.01	249	503	101%	1,999	100%
Se	1.0000	0.008837	0.003802	1.12	249	500	100%	2,000	100%
Sr	1.0000	0.3086	0.03402	0.98	253	505	101%	1,998	100%
Mo	0.9999	0.0558	0.005096	0.94	244	503	101%	--------	######
Ag	0.9999	0.1382	0.002933	1.00	245	503	101%	--------	######
Cd	1.0000	0.02833	0.0003782	1.01	242	487	97%	2,004	100%
Sn	1.0000	0.08355	0.00807	1.00	241	509	102%	1,999	100%
Sb	0.9998	0.1006	0.003297	0.97	242	505	101%	--------	######
Ba	1.0000	0.04121	0.002052	1.00	242	490	98%	2,004	100%
Tl	1.0000	0.3065	0.008034	0.96	254	512	102%	1,997	100%
Pb	1.0000	0.4137	0.02013	1.00	248	507	101%	1,998	100%

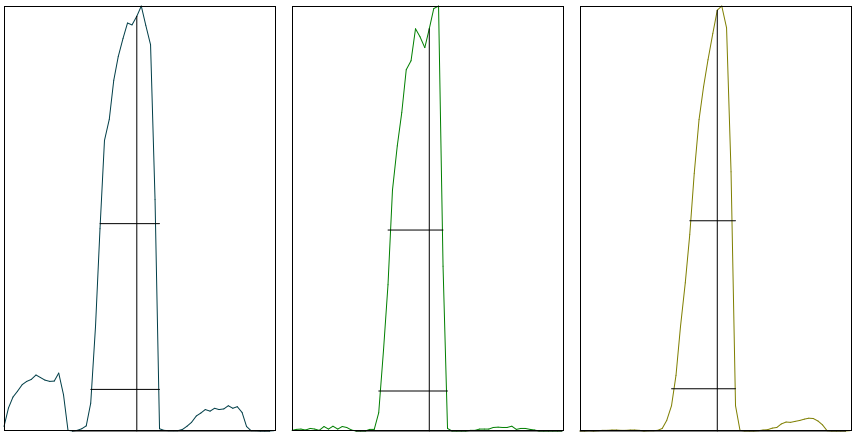
Tune Report

Tune File : He.U
Comment :



Integration Time: 0.1000 sec
Sampling Period: 0.2000 sec
n: 200
Oxide: 156/140 0.256%
Doubly Charged: 70/140 2.541%

m/z	Range	Count	Mean	RSD%	Background
51	20	4.0	4.3	51.30	0.10
59	5,000	2179.0	2302.7	3.47	0.10
51/59	1	0.184%	0.185%	51.58	



m/z:	59	89	205
Height:	2,343	845	4,700
Axis:	59.00	89.05	205.05
W-50%:	0.65	0.60	0.50
W-10%:	0.7500	0.7500	0.700

Integration Time: 0.1000 sec
Acquisition Time: 22.5600 sec

Y axis : Linear

Generated : Mar 20, 2014 09:42:52
Printed : Mar 20, 2014 09:42:54

Tune Report

Tune File : He.U
Comment :

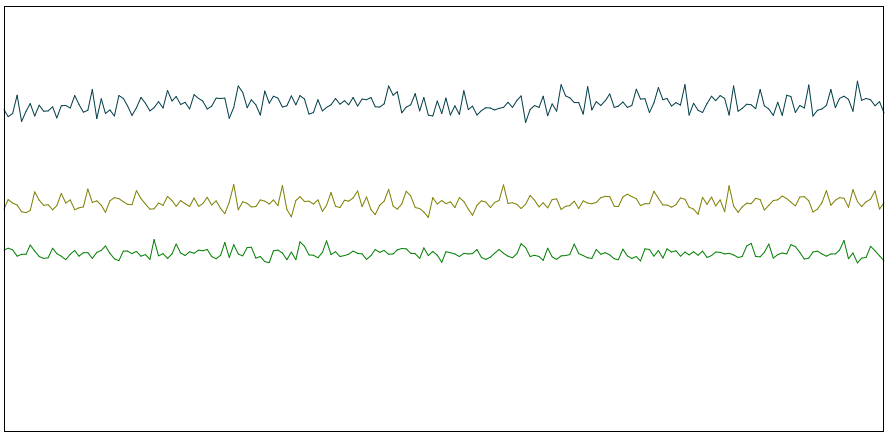
Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1550	W	Extract 1	:	0	V	AMU Gain	:	121	
RF Matching	:	1.7	V	Extract 2	:	-135	V	AMU Offset	:	121	
Smpl Depth	:	10	mm	Omega Bias-ce	:	-22	V	Axis Gain	:	0.9993	
Torch-H	:	-0.1	mm	Omega Lens-ce	:	1	V	Axis Offset	:	-0.06	
Torch-V	:	1.1	mm	Cell Entrance	:	-40	V	QP Bias	:	-16	V
Carrier Gas	:	1.2	L/min	QP Focus	:	-9	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1710	V
Sample Pump	:	---	rps	OctP RF	:	200	V	Pulse HV	:	1080	V
S/C Temp	:	2	degC	OctP Bias	:	-18	V				

===Reaction Cell===											
Reaction Mode	:	ON									
H2 Gas	:	0	mL/min	He Gas	:	4.7	mL/min	Optional Gas	:	---	%

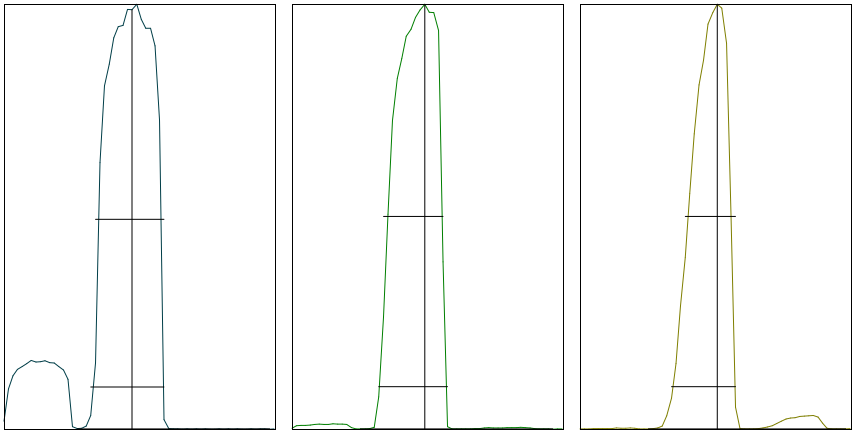
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.8200 sec	
n:	200	
Oxide:	156/140	1.135%
Doubly Charged:	70/140	3.027%

m/z	Range	Count	Mean	RSD%	Background
7	20,000	14996.0	15411.2	2.45	8.10
89	50,000	20099.0	20935.1	2.54	7.70
205	20,000	10761.0	10764.5	2.64	11.40
156/140	2	1.172%	1.153%	8.63	
70/140	5	2.997%	2.949%	5.96	
23	50,000	47314.0	47847.0	3.99	6.60
80	1,000,000	505423.0	508805.0	0.60	7.10



m/z:	7	89	205
Height:	15,311	21,071	11,294
Axis:	6.95	89.00	205.05
W-50%:	0.75	0.65	0.55
W-10%:	0.800	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.7600 sec

Y axis : Linear

Generated : Mar 20, 2014 09:38:46
Printed : Mar 20, 2014 09:38:48

Tune Report

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1550	W	Extract 1	:	0	V	AMU Gain	:	121	
RF Matching	:	1.7	V	Extract 2	:	-135	V	AMU Offset	:	121	
Smpl Depth	:	10	mm	Omega Bias-ce	:	-22	V	Axis Gain	:	0.9993	
Torch-H	:	-0.1	mm	Omega Lens-ce	:	1	V	Axis Offset	:	-0.06	
Torch-V	:	1.1	mm	Cell Entrance	:	-40	V	QP Bias	:	-3	V
Carrier Gas	:	1.2	L/min	QP Focus	:	2	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1710	V
Sample Pump	:	---	rps	OctP RF	:	200	V	Pulse HV	:	1080	V
S/C Temp	:	2	degC	OctP Bias	:	-7	V				

===Reaction Cell===

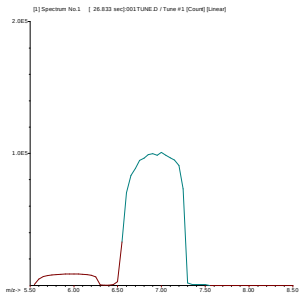
Reaction Mode	:	OFF									
H2 Gas	:	0	mL/min	He Gas	:	0	mL/min	Optional Gas	:	---	%

6020 QC Tune Report

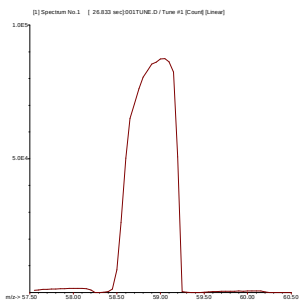
Data File: C:\ICPCHEM\1\DATA\14C20j00.B\001TUNE.D
Date Acquired: Mar 20 2014 09:53 am
Acq. Method: TN6020.M
Operator: SW
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

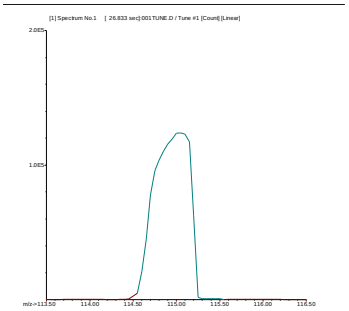
Element	Actual	Required	Flag
7 Li	3.06	5.00	
59 Co	2.59	5.00	
115 In	2.81	5.00	
205 Tl	1.22	5.00	



7 Li
Mass Calib.
Actual: 6.95
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.70
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:



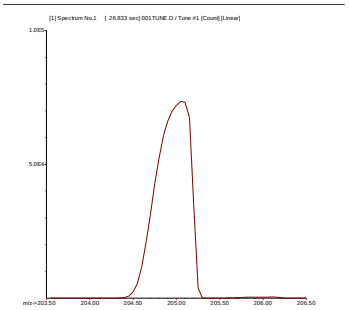
115 In

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:	

P/A Factor Tuning Report

Acquired:Mar 20 2014 09:47 am

Mass[amu]	Element	P/A Factor
6	Li	0.073315
23	Na	0.087409
24	Mg	0.090812
27	Al	0.093425
39	K	0.093791
44	Ca	Sensitivity too low
45	Sc	0.094889
47	Ti	Sensitivity too low
51	V	0.096384
52	Cr	0.099023
55	Mn	0.100261
59	Co	0.102757
60	Ni	0.104156
63	Cu	0.105681
66	Zn	0.105388
72	Ge	0.104526
75	As	0.104216
78	Se	Sensitivity too low
88	Sr	0.104902
95	Mo	0.103877
106	(Cd)	0.108636
107	Ag	Sensitivity too low
108	(Cd)	0.108769
111	Cd	0.109699
115	In	0.109389
118	Sn	0.109090
121	Sb	0.108970
137	Ba	Sensitivity too low
205	Tl	0.115647
206	(Pb)	0.115278
207	(Pb)	0.115394
208	Pb	0.115507
209	Bi	0.115296
238		0.115534

===Detector Parameters===
Discriminator: 8.0 mV
Analog HV: 1710 V
Pulse HV: 1080 V

Calibration Blank QC Report

Acq. Method: DHL_3Fe.M Sample Name: BLANK STD 1
Operator: SW Instrument: ICPMS3
Last Cal. Update: Mar 20 2014 10:45 am
Date Acquired: Mar 20 2014 10:42 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	5199132.00	A	47770.00	0.92
7	Li	2	45	353475.50	P	1838.00	0.52
9	Be	2	45	64.45	P	15.40	23.90
11	B	2	45	4557.66	P	65.09	1.43
23	Na	1	45	4188.64	P	191.60	4.57
24	Mg	1	45	153.34	P	12.02	7.84
27	Al	1	45	35.11	P	5.05	14.38
39	K	1	45	1882.44	P	116.50	6.19
44	Ca	2	45	5152.46	P	241.70	4.69
45	Sc	1	---	76810.72	P	1654.00	2.15
45	Sc	2	---	5118501.00	A	46760.00	0.91
47	Ti	1	45	1.33	P	1.33	99.97
51	V	1	45	82.67	P	12.00	14.52
51	V	2	---		P		
52	Cr	1	45	101.78	P	10.86	10.67
55	Mn	1	45	13.78	P	8.88	64.44
56	Fe	1	72	656.92	P	34.80	5.30
59	Co	1	72	8.44	P	1.54	18.24
60	Ni	1	72	30.67	P	4.00	13.04
60	Ni	2	---		P		
63	Cu	1	72	542.69	P	43.88	8.09
63	Cu	2	---		P		
66	Zn	1	72	171.56	P	32.72	19.07
66	Zn	2	---		P		
72	Ge	1	---	48551.47	P	1031.00	2.12
72	Ge	2	---		P		
75	As	1	72	6.26	P	1.24	19.80
78	Se	1	72	0.93	P	0.26	27.71
88	Sr	2	###	1031.20	P	77.28	7.49
95	Mo	2	###	154.45	P	10.72	6.94
107	Ag	2	###	88.89	P	5.09	5.73
111	Cd	2	###	11.45	P	19.88	173.56
115	In	2	---	6060328.00	A	39910.00	0.66
118	Sn	2	###	244.46	P	27.15	11.11
121	Sb	2	###	100.01	P	28.48	28.48
137	Ba	2	###	62.23	P	15.75	25.31
205	Tl	2	###	168.90	P	16.78	9.94
208	Pb	2	###	423.36	P	66.92	15.81
209	Bi	2	---	4203489.00	A	55820.00	1.33

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 1/20 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Mar 20 2014 10:48 am
Last Cal. Update: Mar 20 2014 10:45 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	5221440.00	A	37450.00	0.72	
7	Li	2	45	357329.41	P	3267.00	0.91	
9	Be	2	45	2383.65	P	110.50	4.64	
11	B	2	45	6725.39	P	59.31	0.88	
23	Na	1	45	7061.15	P	122.10	1.73	
24	Mg	1	45	1325.68	P	53.99	4.07	
27	Al	1	45	312.90	P	3.36	1.07	
39	K	1	45	2373.66	P	156.30	6.58	
44	Ca	2	45	8691.15	P	43.53	0.50	
45	Sc	1	---	78104.33	P	1331.00	1.70	
45	Sc	2	---	5151497.00	A	26410.00	0.51	
47	Ti	1	45	12.89	P	5.05	39.17	
51	V	1	45	613.36	P	2.67	0.43	
51	V	2	---		P			
52	Cr	1	45	790.71	P	27.36	3.46	
55	Mn	1	45	292.01	P	16.65	5.70	
56	Fe	1	72	11118.03	P	279.10	2.51	
59	Co	1	72	1357.43	P	35.88	2.64	
60	Ni	1	72	424.90	P	36.03	8.48	
60	Ni	2	---		P			
63	Cu	1	72	1291.20	P	16.67	1.29	
63	Cu	2	---		P			
66	Zn	1	72	258.67	P	10.58	4.09	
66	Zn	2	---		P			
72	Ge	1	---	49244.21	P	758.90	1.54	
72	Ge	2	---		P			
75	As	1	72	54.85	P	1.71	3.11	
78	Se	1	72	3.37	P	0.34	10.07	
88	Sr	2	115	10300.37	P	310.80	3.02	
95	Mo	2	115	1759.10	P	100.30	5.70	
107	Ag	2	115	4302.07	P	109.90	2.55	
111	Cd	2	115	882.08	P	26.02	2.95	
115	In	2	---	6106351.00	A	82120.00	1.34	
118	Sn	2	115	2792.67	P	75.84	2.72	
121	Sb	2	115	3088.32	P	60.13	1.95	
137	Ba	2	115	1319.02	P	46.23	3.50	
205	Tl	2	209	6307.58	P	107.90	1.71	
208	Pb	2	209	9055.17	P	409.40	4.52	
209	Bi	2	---	4193522.00	A	35670.00	0.85	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	5221440.00	0.72	5199131.50	100.4	70 - 120	
45	Sc	1	78104.33	1.70	76810.72	101.7	70 - 120	
45	Sc	2	5151497.50	0.51	5118500.50	100.6	70 - 120	
72	Ge	1	49244.21	1.54	48551.47	101.4	70 - 120	
115	In	2	6106350.50	1.34	6060328.00	100.8	70 - 120	
209	Bi	2	4193522.00	0.85	4203488.50	99.8	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 10/200 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Mar 20 2014 10:54 am
Last Cal. Update: Mar 20 2014 10:51 am

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)	Flag
6 Li 2 ---	5255542.00	A	30650.00	0.58		
7 Li 2 45	356529.00	P	3783.00	1.06		Fail
9 Be 2 45	24246.14	P	179.30	0.74		Fail
11 B 2 45	22756.78	P	165.50	0.73		Fail
23 Na 1 45	28890.85	P	543.50	1.88		Fail
24 Mg 1 45	10777.26	P	110.90	1.03		Fail
27 Al 1 45	2603.87	P	87.35	3.35		Fail
39 K 1 45	6763.21	P	135.10	2.00		Fail
44 Ca 2 45	46346.43	P	197.40	0.43		Fail
45 Sc 1 ---	78416.96	P	1759.00	2.24		
45 Sc 2 ---	5114545.00	A	36870.00	0.72		
47 Ti 1 45	113.78	P	10.78	9.47		Fail
51 V 1 45	5231.41	P	124.20	2.37		Fail
51 V 2 ---		P				
52 Cr 1 45	6809.08	P	65.50	0.96		Fail
55 Mn 1 45	2510.97	P	76.58	3.05		Fail
56 Fe 1 72	101825.30	P	2783.00	2.73		Fail
59 Co 1 72	13037.27	P	282.10	2.16		
60 Ni 1 72	3901.12	P	65.29	1.67		Fail
60 Ni 2 ---		P				
63 Cu 1 72	11129.63	P	253.30	2.28		Fail
63 Cu 2 ---		P				
66 Zn 1 72	1136.07	P	36.10	3.18		Fail
66 Zn 2 ---		P				
72 Ge 1 ---	49219.01	P	412.10	0.84		
72 Ge 2 ---		P				
75 As 1 72	497.49	P	14.61	2.94		Fail
78 Se 1 72	25.07	P	2.73	10.88		Fail
88 Sr 2 115	94121.59	P	861.60	0.92		Fail
95 Mo 2 115	16466.28	P	299.10	1.82		Fail
107 Ag 2 115	41782.81	P	209.90	0.50		Fail
111 Cd 2 115	8343.08	P	166.20	1.99		Fail
115 In 2 ---	6101407.00	A	55090.00	0.90		
118 Sn 2 115	24866.75	P	317.30	1.28		Fail
121 Sb 2 115	29867.36	P	66.35	0.22		Fail
137 Ba 2 115	12044.38	P	216.20	1.80		Fail
205 Tl 2 209	62567.54	P	559.80	0.89		Fail
208 Pb 2 209	85446.41	P	394.30	0.46		Fail
209 Bi 2 ---	4216621.00	A	11700.00	0.28		

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li 2	5255542.00	0.58	5199131.50	101.1	70 - 120	
45 Sc 1	78416.96	2.24	76810.72	102.1	70 - 120	
45 Sc 2	5114545.00	0.72	5118500.50	99.9	70 - 120	
72 Ge 1	49219.02	0.84	48551.47	101.4	70 - 120	
115 In 2	6101407.00	0.90	6060328.00	100.7	70 - 120	
209 Bi 2	4216621.00	0.28	4203488.50	100.3	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 50/1000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Mar 20 2014 11:00 am
Last Cal. Update: Mar 20 2014 10:57 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	5183332.00	A	76890.00	1.48	
7	Li	2	45	353172.19	P	4114.00	1.16	Fail
9	Be	2	45	123888.40	P	1738.00	1.40	Fail
11	B	2	45	95078.01	P	969.00	1.02	Fail
23	Na	1	45	125872.00	P	2751.00	2.19	Fail
24	Mg	1	45	55208.83	P	632.90	1.15	Fail
27	Al	1	45	13536.79	P	525.20	3.88	
39	K	1	45	26578.09	P	707.10	2.66	Fail
44	Ca	2	45	215608.80	P	3441.00	1.60	Fail
45	Sc	1	---	76626.23	P	1934.00	2.52	
45	Sc	2	---	4992471.00	A	82200.00	1.65	
47	Ti	1	45	576.47	P	64.31	11.16	
51	V	1	45	26196.82	P	937.90	3.58	Fail
51	V	2	---		P			
52	Cr	1	45	34812.60	P	1045.00	3.00	Fail
55	Mn	1	45	12696.01	P	263.10	2.07	
56	Fe	1	72	519663.31	P	13290.00	2.56	
59	Co	1	72	66676.98	P	1204.00	1.81	
60	Ni	1	72	19661.20	P	157.10	0.80	
60	Ni	2	---		P			
63	Cu	1	72	55185.62	P	1087.00	1.97	Fail
63	Cu	2	---		P			
66	Zn	1	72	4918.84	P	204.70	4.16	Fail
66	Zn	2	---		P			
72	Ge	1	---	47952.48	P	757.90	1.58	
72	Ge	2	---		P			
75	As	1	72	2512.08	P	56.50	2.25	
78	Se	1	72	115.33	P	4.34	3.76	Fail
88	Sr	2	115	478334.41	P	7183.00	1.50	Fail
95	Mo	2	115	83515.56	P	305.90	0.37	Fail
107	Ag	2	115	211138.41	P	2235.00	1.06	Fail
111	Cd	2	115	43272.98	P	120.70	0.28	Fail
115	In	2	---	5905984.00	A	86550.00	1.47	
118	Sn	2	115	125964.30	P	1755.00	1.39	Fail
121	Sb	2	115	153058.09	P	1174.00	0.77	Fail
137	Ba	2	115	61809.79	P	617.90	1.00	Fail
205	Tl	2	209	321585.50	P	4857.00	1.51	Fail
208	Pb	2	209	435644.19	P	5032.00	1.16	Fail
209	Bi	2	---	4092098.00	A	49430.00	1.21	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	5183332.00	1.48	5199131.50	99.7	70 - 120	
45	Sc	1	76626.23	2.52	76810.72	99.8	70 - 120	
45	Sc	2	4992470.50	1.65	5118500.50	97.5	70 - 120	
72	Ge	1	47952.48	1.58	48551.47	98.8	70 - 120	
115	In	2	5905984.00	1.47	6060328.00	97.5	70 - 120	
209	Bi	2	4092097.80	1.21	4203488.50	97.4	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 100/2000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Mar 20 2014 11:06 am
Last Cal. Update: Mar 20 2014 11:03 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	5210347.00	A	20570.00	0.39	
7	Li	2	45	355101.69	P	3683.00	1.04	Fail
9	Be	2	45	242099.20	P	3190.00	1.32	Fail
11	B	2	45	182648.50	P	1476.00	0.81	Fail
23	Na	1	45	245181.09	P	4539.00	1.85	Fail
24	Mg	1	45	106826.00	P	2598.00	2.43	
27	Al	1	45	26305.10	P	618.90	2.35	
39	K	1	45	50523.53	P	1155.00	2.29	Fail
44	Ca	2	45	416980.81	P	4417.00	1.06	Fail
45	Sc	1	---	79229.92	P	1245.00	1.57	
45	Sc	2	---	5080062.00	A	61300.00	1.21	
47	Ti	1	45	1139.63	P	37.01	3.25	
51	V	1	45	51981.23	P	815.30	1.57	
51	V	2	---		A			
52	Cr	1	45	67867.85	P	1737.00	2.56	
55	Mn	1	45	25163.18	P	669.90	2.66	
56	Fe	1	72	1037590.00	A	27630.00	2.66	
59	Co	1	72	129793.60	P	2278.00	1.76	
60	Ni	1	72	38399.00	P	652.40	1.70	
60	Ni	2	---		P			
63	Cu	1	72	107872.60	P	1437.00	1.33	Fail
63	Cu	2	---		P			
66	Zn	1	72	9576.76	P	207.30	2.16	Fail
66	Zn	2	---		P			
72	Ge	1	---	49553.29	P	556.50	1.12	
72	Ge	2	---		P			
75	As	1	72	4911.91	P	76.62	1.56	
78	Se	1	72	225.04	P	10.38	4.61	Fail
88	Sr	2	115	931299.19	P	7095.00	0.76	Fail
95	Mo	2	115	165066.70	P	1875.00	1.14	Fail
107	Ag	2	115	413942.91	P	6339.00	1.53	Fail
111	Cd	2	115	84234.87	P	414.70	0.49	Fail
115	In	2	---	6016881.00	A	66460.00	1.10	
118	Sn	2	115	243597.70	P	1001.00	0.41	Fail
121	Sb	2	115	297083.00	P	1293.00	0.44	Fail
137	Ba	2	115	121435.00	P	1109.00	0.91	Fail
205	Tl	2	209	632038.69	P	4273.00	0.68	Fail
208	Pb	2	209	855117.31	P	10470.00	1.22	Fail
209	Bi	2	---	4155195.00	A	29500.00	0.71	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	5210347.00	0.39	5199131.50	100.2	70 - 120	
45	Sc	1	79229.91	1.57	76810.72	103.1	70 - 120	
45	Sc	2	5080062.00	1.21	5118500.50	99.2	70 - 120	
72	Ge	1	49553.29	1.12	48551.47	102.1	70 - 120	
115	In	2	6016880.50	1.10	6060328.00	99.3	70 - 120	
209	Bi	2	4155195.00	0.71	4203488.50	98.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 250/5000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Mar 20 2014 11:12 am
Last Cal. Update: Mar 20 2014 11:10 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	5229601.00	A	27050.00	0.52	
7	Li	2	45	356930.41	P	3730.00	1.05	Fail
9	Be	2	45	594165.63	P	6782.00	1.14	Fail
11	B	2	45	437015.69	P	1719.00	0.39	Fail
23	Na	1	45	598583.38	P	7314.00	1.22	Fail
24	Mg	1	45	264312.69	P	2769.00	1.05	
27	Al	1	45	64687.21	P	1318.00	2.04	
39	K	1	45	121632.60	P	1686.00	1.39	Fail
44	Ca	2	45	1057705.00	A	6499.00	0.61	Fail
45	Sc	1	---	79023.11	P	754.80	0.96	
45	Sc	2	---	5066231.00	A	16420.00	0.32	
47	Ti	1	45	2839.93	P	38.71	1.36	
51	V	1	45	127254.90	P	1783.00	1.40	
51	V	2	---		A			
52	Cr	1	45	166239.59	P	2585.00	1.56	
55	Mn	1	45	61995.84	P	670.30	1.08	
56	Fe	1	72	2527389.00	A	34680.00	1.37	
59	Co	1	72	318186.19	P	4380.00	1.38	
60	Ni	1	72	93862.64	P	731.10	0.78	
60	Ni	2	---		P			
63	Cu	1	72	263029.31	P	2356.00	0.90	
63	Cu	2	---		P			
66	Zn	1	72	22569.40	P	266.90	1.18	Fail
66	Zn	2	---		P			
72	Ge	1	---	49235.97	P	727.90	1.48	
72	Ge	2	---		P			
75	As	1	72	12017.65	P	234.80	1.95	
78	Se	1	72	543.01	P	12.66	2.33	
88	Sr	2	115	2342849.00	A	6743.00	0.29	Fail
95	Mo	2	115	407472.09	P	3471.00	0.85	Fail
107	Ag	2	115	1012726.00	M	16330.00	1.61	Fail
111	Cd	2	115	204947.50	P	1683.00	0.82	Fail
115	In	2	---	5990469.00	A	31480.00	0.53	
118	Sn	2	115	604169.38	P	5913.00	0.98	Fail
121	Sb	2	115	727466.69	P	10480.00	1.44	Fail
137	Ba	2	115	298311.31	P	2776.00	0.93	Fail
205	Tl	2	209	1613977.00	A	7397.00	0.46	Fail
208	Pb	2	209	2129688.00	A	15990.00	0.75	Fail
209	Bi	2	---	4147211.00	A	47340.00	1.14	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	5229601.00	0.52	5199131.50	100.6	70 - 120	
45	Sc	1	79023.11	0.96	76810.72	102.9	70 - 120	
45	Sc	2	5066231.00	0.32	5118500.50	99.0	70 - 120	
72	Ge	1	49235.97	1.48	48551.47	101.4	70 - 120	
115	In	2	5990468.50	0.53	6060328.00	98.8	70 - 120	
209	Bi	2	4147211.30	1.14	4203488.50	98.7	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 500/10000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Mar 20 2014 11:18 am
Last Cal. Update: Mar 20 2014 11:15 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	5237467.00	A	58240.00	1.11	
7	Li	2	45	355903.59	P	4172.00	1.17	Fail
9	Be	2	45	1146381.00	A	6429.00	0.56	Fail
11	B	2	45	909612.63	A	19050.00	2.09	Fail
23	Na	1	45	1230089.00	A	6035.00	0.49	Fail
24	Mg	1	45	530842.00	P	10890.00	2.05	
27	Al	1	45	131821.20	P	2963.00	2.25	
39	K	1	45	244405.00	P	4324.00	1.77	Fail
44	Ca	2	45	2123337.00	A	9384.00	0.44	Fail
45	Sc	1	---	78910.33	P	1257.00	1.59	
45	Sc	2	---	5081408.00	A	66840.00	1.32	
47	Ti	1	45	5726.74	P	143.80	2.51	
51	V	1	45	258858.20	P	5212.00	2.01	
51	V	2	---		A			
52	Cr	1	45	336517.50	P	8081.00	2.40	
55	Mn	1	45	124550.30	P	2738.00	2.20	
56	Fe	1	72	4983020.00	A	90000.00	1.81	
59	Co	1	72	639756.50	P	10940.00	1.71	
60	Ni	1	72	187595.09	P	3515.00	1.87	
60	Ni	2	---		P			
63	Cu	1	72	523642.00	P	9609.00	1.84	
63	Cu	2	---		A			
66	Zn	1	72	44221.41	P	846.60	1.91	
66	Zn	2	---		P			
72	Ge	1	---	48859.12	P	557.90	1.14	
72	Ge	2	---		P			
75	As	1	72	24096.41	P	395.10	1.64	
78	Se	1	72	1080.98	P	33.19	3.07	
88	Sr	2	115	4646622.00	A	22050.00	0.47	Fail
95	Mo	2	115	838292.88	P	5869.00	0.70	Fail
107	Ag	2	115	2072312.00	A	2281.00	0.11	Fail
111	Cd	2	115	411338.50	P	2808.00	0.68	
115	In	2	---	5966936.00	A	15820.00	0.27	
118	Sn	2	115	1269037.00	A	10220.00	0.81	Fail
121	Sb	2	115	1513795.00	A	5236.00	0.35	Fail
137	Ba	2	115	602352.19	P	4046.00	0.67	Fail
205	Tl	2	209	3207349.00	A	17450.00	0.54	Fail
208	Pb	2	209	4290103.00	A	22270.00	0.52	Fail
209	Bi	2	---	4089461.00	A	6740.00	0.16	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	5237467.50	1.11	5199131.50	100.7	70 - 120	
45	Sc	1	78910.33	1.59	76810.72	102.7	70 - 120	
45	Sc	2	5081407.50	1.32	5118500.50	99.3	70 - 120	
72	Ge	1	48859.13	1.14	48551.47	100.6	70 - 120	
115	In	2	5966935.50	0.27	6060328.00	98.5	70 - 120	
209	Bi	2	4089461.30	0.16	4203488.50	97.3	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 2000/25000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Mar 20 2014 11:24 am
Last Cal. Update: Mar 20 2014 11:21 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	5030321.00	A	53970.00	1.07	
7	Li	2	45	341275.91	P	2834.00	0.83	Fail
9	Be	2	45	4223142.00	A	26590.00	0.63	
11	B	2	45	3275900.00	A	46030.00	1.41	Fail
23	Na	1	45	3069229.00	A	61210.00	1.99	
24	Mg	1	45	1391137.00	A	24460.00	1.76	
27	Al	1	45	179.12	P	22.16	12.37	Fail
39	K	1	45	626969.38	P	9336.00	1.49	Fail
44	Ca	2	45	5217455.00	A	33950.00	0.65	Fail
45	Sc	1	---	78048.00	P	1473.00	1.89	
45	Sc	2	---	4958558.00	A	17370.00	0.35	
47	Ti	1	45	22265.94	P	503.60	2.26	
51	V	1	45	1054948.00	A	22950.00	2.18	
51	V	2	---		A			
52	Cr	1	45	1362130.00	A	30750.00	2.26	
55	Mn	1	45	488394.69	P	10630.00	2.18	
56	Fe	1	72	13532.75	P	173.00	1.28	Fail
59	Co	1	72	2537072.00	A	24360.00	0.96	
60	Ni	1	72	728906.00	P	10810.00	1.48	
60	Ni	2	---		A			
63	Cu	1	72	2066447.00	A	34540.00	1.67	
63	Cu	2	---		A			
66	Zn	1	72	171828.80	P	3346.00	1.95	
66	Zn	2	---		A			
72	Ge	1	---	48347.33	P	634.50	1.31	
72	Ge	2	---		P			
75	As	1	72	94810.41	P	1726.00	1.82	
78	Se	1	72	4273.38	P	96.31	2.25	
88	Sr	2	115	17778680.00	A	151000.00	0.85	Fail
95	Mo	2	115	3296419.00	A	10030.00	0.30	Fail
107	Ag	2	115	960.08	P	145.20	15.12	Fail
111	Cd	2	115	1636901.00	A	6036.00	0.37	
115	In	2	---	5766152.00	A	37350.00	0.65	
118	Sn	2	115	4815137.00	A	36270.00	0.75	Fail
121	Sb	2	115	1025.64	P	129.50	12.63	Fail
137	Ba	2	115	2380370.00	A	18520.00	0.78	
205	Tl	2	209	12083970.00	A	81750.00	0.68	
208	Pb	2	209	16328380.00	A	82980.00	0.51	
209	Bi	2	---	3949917.00	A	18390.00	0.47	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2		5030321.00	1.07	5199131.50	96.8	70 -	120	
45	Sc	1		78048.01	1.89	76810.72	101.6	70 -	120	
45	Sc	2		4958558.00	0.35	5118500.50	96.9	70 -	120	
72	Ge	1		48347.33	1.31	48551.47	99.6	70 -	120	
115	In	2		5766151.50	0.65	6060328.00	95.1	70 -	120	
209	Bi	2		3949917.00	0.47	4203488.50	94.0	70 -	120	

ICSA QC Report

C:\ICPCHEM\1\DATA\14C20k00.B\017ICSA.D\017ICSA.D#

Date Acquired:	Mar 20 2014 11:41 am	Sample Name:	**ICSA-140320**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 11:27 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	-30460.000	ppb	1.07	8.00	5.00	
9	Be	2	45	0.053	ppb	3.85	0.32	0.80	
11	B	2	45	7.764	ppb	1.59	30.00	30.00	
23	Na	1	45	92000.000	ppb	1.63	#######	#######	
24	Mg	1	45	93020.000	ppb	1.92	#######	#######	
27	Al	1	45	104500.000	ppb	2.58	#######	#######	
39	K	1	45	96680.000	ppb	1.34	#######	#######	
44	Ca	2	45	92860.000	ppb	0.52	#######	#######	
47	Ti	1	45	2031.000	ppb	1.76	10.00	10.00	
51	V	1	45	0.083	ppb	8.48	10.00	10.00	
52	Cr	1	45	0.435	ppb	3.17	8.00	5.00	
55	Mn	1	45	2.761	ppb	10.40	8.00	10.00	
56	Fe	1	72	95490.000	ppb	2.03	#######	#######	
59	Co	1	72	1.897	ppb	4.64	8.00	10.00	
60	Ni	1	72	1.674	ppb	5.91	8.00	10.00	
63	Cu	1	72	0.705	ppb	6.03	8.00	10.00	
66	Zn	1	72	1.451	ppb	6.23	10.00	5.00	
75	As	1	72	0.396	ppb	7.28	4.00	5.00	
78	Se	1	72	0.559	ppb	16.36	2.00	5.00	
88	Sr	2	115	0.480	ppb	2.30	10.00	10.00	
95	Mo	2	115	2050.000	ppb	0.63	8.00	5.00	
107	Ag	2	115	0.373	ppb	8.16	0.80	2.00	
111	Cd	2	115	0.585	ppb	20.85	1.20	1.00	
118	Sn	2	115	0.558	ppb	4.06	10.00	10.00	
121	Sb	2	115	1.057	ppb	3.99	4.00	2.50	
137	Ba	2	115	7.497	ppb	1.98	8.00	10.00	
205	Tl	2	209	0.458	ppb	0.56	4.00	1.50	
208	Pb	2	209	0.222	ppb	1.76	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4529643.00	1.11	5199131.50	87.1	70 - 120	
45	Sc	1	77715.15	1.40	76810.72	101.2	70 - 120	
45	Sc	2	4721086.00	1.34	5118500.50	92.2	70 - 120	
72	Ge	1	47422.82	1.54	48551.47	97.7	70 - 120	
115	In	2	5409541.50	1.46	6060328.00	89.3	70 - 120	
209	Bi	2	3595723.30	1.42	4203488.50	85.5	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\14C20k00.B\018ICSB.D\018ICSB.D#

Date Acquired:	Mar 20 2014 11:47 am	Sample Name:	**ICSAB-140320**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 11:27 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	-34610.00	ppb	0.77	---	80 -		120	
9	Be	2	45	0.03	ppb	5.26	---	80 -		120	
11	B	2	45	5.57	ppb	0.31	---	80 -		120	
23	Na	1	45	91820.00	ppb	1.29	100000.00	80 -		120	
24	Mg	1	45	91310.00	ppb	2.02	100000.00	80 -		120	
27	Al	1	45	102800.00	ppb	2.78	100000.00	80 -		120	
39	K	1	45	95460.00	ppb	2.25	100000.00	80 -		120	
44	Ca	2	45	92640.00	ppb	0.60	100000.00	80 -		120	
47	Ti	1	45	2023.00	ppb	1.88	---	80 -		120	
51	V	1	45	38.33	ppb	2.25	40.00	80 -		120	
52	Cr	1	45	19.81	ppb	1.05	20.00	80 -		120	
55	Mn	1	45	22.00	ppb	1.08	20.00	80 -		120	
56	Fe	1	72	94790.00	ppb	2.04	100000.00	80 -		120	
59	Co	1	72	40.35	ppb	1.88	40.00	80 -		120	
60	Ni	1	72	39.62	ppb	1.75	40.00	80 -		120	
63	Cu	1	72	18.42	ppb	1.68	20.00	80 -		120	
66	Zn	1	72	20.04	ppb	3.15	20.00	80 -		120	
75	As	1	72	20.84	ppb	1.87	20.00	80 -		120	
78	Se	1	72	19.85	ppb	2.05	20.00	80 -		120	
88	Sr	2	115	0.43	ppb	1.76	---	80 -		120	
95	Mo	2	115	2051.00	ppb	0.92	---	80 -		120	
107	Ag	2	115	18.65	ppb	1.73	20.00	80 -		120	
111	Cd	2	115	9.82	ppb	5.04	10.00	80 -		120	
118	Sn	2	115	0.37	ppb	6.51	---	80 -		120	
121	Sb	2	115	0.97	ppb	3.54	---	80 -		120	
137	Ba	2	115	0.35	ppb	11.72	---	80 -		120	
205	Tl	2	209	0.21	ppb	4.73	---	80 -		120	
208	Pb	2	209	0.21	ppb	1.85	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4528434.50	0.13	5199131.50	87.1	70 -		120	
45	Sc	1	75374.18	1.50	76810.72	98.1	70 -		120	
45	Sc	2	4715208.50	1.01	5118500.50	92.1	70 -		120	
72	Ge	1	46203.38	1.39	48551.47	95.2	70 -		120	
115	In	2	5434608.50	0.28	6060328.00	89.7	70 -		120	
209	Bi	2	3595607.00	0.77	4203488.50	85.5	70 -		120	

CCV QC Report

C:\ICPCHEM\1\DATA\14C20k00.B\021ICV.D\021ICV.D#

Date Acquired:	Mar 20 2014 12:05 pm	Sample Name:	**ICV1-140320**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 11:27 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10040.00	ppb	0.42	100.00	90 -	110	######	Fail
9	Be	2	45	104.00	ppb	1.14	100.00	90 -	110	104.0	
11	B	2	45	102.00	ppb	0.58	100.00	90 -	110	102.0	
23	Na	1	45	2394.00	ppb	0.84	2500.00	90 -	110	95.8	
24	Mg	1	45	2405.00	ppb	0.74	2500.00	90 -	110	96.2	
27	Al	1	45	2531.00	ppb	2.11	2500.00	90 -	110	101.2	
39	K	1	45	2426.00	ppb	2.29	2500.00	90 -	110	97.0	
44	Ca	2	45	2376.00	ppb	0.57	2500.00	90 -	110	95.0	
47	Ti	1	45	100.20	ppb	4.06	100.00	90 -	110	100.2	
51	V	1	45	94.64	ppb	2.02	100.00	90 -	110	94.6	
52	Cr	1	45	98.48	ppb	1.61	100.00	90 -	110	98.5	
55	Mn	1	45	100.40	ppb	1.74	100.00	90 -	110	100.4	
56	Fe	1	72	2558.00	ppb	1.03	2500.00	90 -	110	102.3	
59	Co	1	72	101.30	ppb	1.51	100.00	90 -	110	101.3	
60	Ni	1	72	104.10	ppb	0.51	100.00	90 -	110	104.1	
63	Cu	1	72	100.50	ppb	1.50	100.00	90 -	110	100.5	
66	Zn	1	72	103.40	ppb	1.04	100.00	90 -	110	103.4	
75	As	1	72	100.00	ppb	1.85	100.00	90 -	110	100.0	
78	Se	1	72	104.60	ppb	2.71	100.00	90 -	110	104.6	
88	Sr	2	115	98.70	ppb	0.53	100.00	90 -	110	98.7	
95	Mo	2	115	95.90	ppb	1.37	100.00	90 -	110	95.9	
107	Ag	2	115	96.96	ppb	0.98	100.00	90 -	110	97.0	
111	Cd	2	115	96.64	ppb	1.06	100.00	90 -	110	96.6	
118	Sn	2	115	100.40	ppb	0.68	100.00	90 -	110	100.4	
121	Sb	2	115	95.80	ppb	1.11	100.00	90 -	110	95.8	
137	Ba	2	115	96.74	ppb	1.22	100.00	90 -	110	96.7	
205	Tl	2	209	96.82	ppb	0.86	100.00	90 -	110	96.8	
208	Pb	2	209	98.36	ppb	1.15	100.00	90 -	110	98.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	5193775.00	0.36	5199131.50	99.9	70 -	120		
45	Sc	1	81853.17	1.81	76810.72	106.6	70 -	120		
45	Sc	2	4989681.00	0.35	5118500.50	97.5	70 -	120		
72	Ge	1	50466.73	1.91	48551.47	103.9	70 -	120		
115	In	2	5981367.50	0.65	6060328.00	98.7	70 -	120		
209	Bi	2	4129492.00	0.41	4203488.50	98.2	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14C20k00.B\024LCVL.D\024LCVL.D#

Date Acquired:	Mar 20 2014 12:24 pm	Sample Name:	**ILCVL-140320**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 11:27 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10660.00	ppb	0.54	5.00	70 -	130	######	Fail
9	Be	2	45	1.07	ppb	4.88	1.00	70 -	130	107.1	
11	B	2	45	22.32	ppb	2.06	20.00	70 -	130	111.6	
23	Na	1	45	103.60	ppb	1.78	100.00	70 -	130	103.6	
24	Mg	1	45	102.30	ppb	1.41	100.00	70 -	130	102.3	
27	Al	1	45	102.10	ppb	6.03	100.00	70 -	130	102.1	
39	K	1	45	108.50	ppb	0.30	100.00	70 -	130	108.5	
44	Ca	2	45	96.07	ppb	1.74	100.00	70 -	130	96.1	
47	Ti	1	45	4.71	ppb	17.19	5.00	70 -	130	94.2	
51	V	1	45	0.96	ppb	4.80	1.00	70 -	130	96.4	
52	Cr	1	45	5.04	ppb	1.85	5.00	70 -	130	100.7	
55	Mn	1	45	5.11	ppb	1.33	5.00	70 -	130	102.3	
56	Fe	1	72	100.00	ppb	1.60	100.00	70 -	130	100.0	
59	Co	1	72	5.13	ppb	2.30	5.00	70 -	130	102.6	
60	Ni	1	72	5.37	ppb	3.35	5.00	70 -	130	107.4	
63	Cu	1	72	4.91	ppb	2.63	5.00	70 -	130	98.3	
66	Zn	1	72	4.29	ppb	4.64	5.00	70 -	130	85.9	
75	As	1	72	5.36	ppb	3.64	5.00	70 -	130	107.2	
78	Se	1	72	5.74	ppb	7.28	5.00	70 -	130	114.8	
88	Sr	2	115	5.07	ppb	1.94	5.00	70 -	130	101.4	
95	Mo	2	115	5.17	ppb	1.72	5.00	70 -	130	103.4	
107	Ag	2	115	2.12	ppb	1.39	2.00	70 -	130	105.8	
111	Cd	2	115	1.07	ppb	7.93	1.00	70 -	130	107.0	
118	Sn	2	115	5.28	ppb	3.75	5.00	70 -	130	105.6	
121	Sb	2	115	2.08	ppb	2.99	2.00	70 -	130	104.2	
137	Ba	2	115	4.91	ppb	2.21	5.00	70 -	130	98.3	
205	Tl	2	209	1.06	ppb	2.45	1.00	70 -	130	106.1	
208	Pb	2	209	1.00	ppb	2.42	1.00	70 -	130	100.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	5231016.00	0.90	5199131.50	100.6	70 -	120		
45	Sc	1	84363.09	1.88	76810.72	109.8	70 -	120		
45	Sc	2	5049581.50	1.40	5118500.50	98.7	70 -	120		
72	Ge	1	52045.95	1.84	48551.47	107.2	70 -	120		
115	In	2	6060767.50	1.02	6060328.00	100.0	70 -	120		
209	Bi	2	4245775.50	0.78	4203488.50	101.0	70 -	120		

ICB QC Report

C:\ICPCHEM\1\DATA\14C20k00.B\025_ICB.D\025_ICB.D#

Date Acquired:	Mar 20 2014 12:30 pm	Sample Name:	**ICB1-140320**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 11:27 am	Instrument:	ICPMS3

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	24150.00	ppb	0.35	5.00	Fail
9	Be	2	45	0.01	ppb	40.44	0.80	
11	B	2	45	1.90	ppb	1.12	10.00	
23	Na	1	45	1.53	ppb	2.00	50.00	
24	Mg	1	45	0.32	ppb	7.14	50.00	
27	Al	1	45	1.70	ppb	7.53	30.00	
39	K	1	45	-0.71	ppb	6.16	50.00	
44	Ca	2	45	-4.87	ppb	2.17	50.00	
47	Ti	1	45	-0.08	ppb	173.20	10.00	
51	V	1	45	0.03	ppb	20.90	10.00	
52	Cr	1	45	0.01	ppb	5.15	3.00	
55	Mn	1	45	0.05	ppb	17.17	10.00	
56	Fe	1	72	1.43	ppb	2.38	50.00	
59	Co	1	72	0.02	ppb	13.68	3.00	
60	Ni	1	72	0.01	ppb	9.45	3.00	
63	Cu	1	72	-0.24	ppb	9.50	3.00	
66	Zn	1	72	-0.37	ppb	20.70	10.00	
75	As	1	72	0.06	ppb	6.43	10.00	
78	Se	1	72	0.12	ppb	20.38	10.00	
88	Sr	2	115	-0.03	ppb	4.04	10.00	
95	Mo	2	115	0.30	ppb	6.46	10.00	
107	Ag	2	115	0.00	ppb	16.81	2.00	
111	Cd	2	115	0.01	ppb	66.78	1.00	
118	Sn	2	115	0.13	ppb	12.51	10.00	
121	Sb	2	115	0.02	ppb	13.71	1.00	
137	Ba	2	115	0.01	ppb	32.41	3.00	
205	Tl	2	209	0.05	ppb	3.79	1.00	
208	Pb	2	209	0.01	ppb	15.81	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	5343070.00	0.88	5199131.50	102.8	70 - 120	
45	Sc	1	84096.40	1.29	76810.72	109.5	70 - 120	
45	Sc	2	4997515.00	0.25	5118500.50	97.6	70 - 120	
72	Ge	1	51881.00	2.00	48551.47	106.9	70 - 120	
115	In	2	6050341.00	0.76	6060328.00	99.8	70 - 120	
209	Bi	2	4230224.50	0.55	4203488.50	100.6	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14C20k00.B\070CCV1.D\070CCV1.D#

Date Acquired:	Mar 20 2014 05:00 pm	Sample Name:	**CCV2-140320**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 11:27 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	21640.00	ppb	1.20	200.00	90 -	110	######	Fail
9	Be	2	45	214.60	ppb	0.76	200.00	90 -	110	107.3	
11	B	2	45	217.70	ppb	1.74	200.00	90 -	110	108.9	
23	Na	1	45	5031.00	ppb	0.82	5000.00	90 -	110	100.6	
24	Mg	1	45	5005.00	ppb	1.56	5000.00	90 -	110	100.1	
27	Al	1	45	5314.00	ppb	2.65	5000.00	90 -	110	106.3	
39	K	1	45	5211.00	ppb	2.43	5000.00	90 -	110	104.2	
44	Ca	2	45	5293.00	ppb	0.86	5000.00	90 -	110	105.9	
47	Ti	1	45	195.60	ppb	4.25	200.00	90 -	110	97.8	
51	V	1	45	186.40	ppb	1.53	200.00	90 -	110	93.2	
52	Cr	1	45	189.30	ppb	2.32	200.00	90 -	110	94.7	
55	Mn	1	45	201.10	ppb	2.38	200.00	90 -	110	100.6	
56	Fe	1	72	5231.00	ppb	2.06	5000.00	90 -	110	104.6	
59	Co	1	72	192.80	ppb	1.34	200.00	90 -	110	96.4	
60	Ni	1	72	199.50	ppb	0.82	200.00	90 -	110	99.8	
63	Cu	1	72	193.70	ppb	1.16	200.00	90 -	110	96.9	
66	Zn	1	72	205.10	ppb	2.10	200.00	90 -	110	102.6	
75	As	1	72	200.70	ppb	1.80	200.00	90 -	110	100.4	
78	Se	1	72	214.50	ppb	1.40	200.00	90 -	110	107.3	
88	Sr	2	115	208.00	ppb	1.03	200.00	90 -	110	104.0	
95	Mo	2	115	198.50	ppb	0.97	200.00	90 -	110	99.3	
107	Ag	2	115	202.40	ppb	0.64	200.00	90 -	110	101.2	
111	Cd	2	115	195.70	ppb	0.70	200.00	90 -	110	97.9	
118	Sn	2	115	195.30	ppb	0.95	200.00	90 -	110	97.7	
121	Sb	2	115	202.10	ppb	1.00	200.00	90 -	110	101.1	
137	Ba	2	115	196.20	ppb	0.34	200.00	90 -	110	98.1	
205	Tl	2	209	204.00	ppb	0.37	200.00	90 -	110	102.0	
208	Pb	2	209	196.00	ppb	0.95	200.00	90 -	110	98.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	5461650.50	1.89	5199131.50	105.0	70 -	120		
45	Sc	1	90172.52	1.32	76810.72	117.4	70 -	120		
45	Sc	2	5139081.50	1.21	5118500.50	100.4	70 -	120		
72	Ge	1	54680.19	1.08	48551.47	112.6	70 -	120		
115	In	2	6048365.50	0.75	6060328.00	99.8	70 -	120		
209	Bi	2	4221769.50	0.50	4203488.50	100.4	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14C20k00.B\074LCVL.D\074LCVL.D#

Date Acquired:	Mar 20 2014 05:24 pm	Sample Name:	**LCVL2-140320**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 11:27 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	24970.00	ppb	0.28	5.00	70 -	130	######	Fail
9	Be	2	45	1.10	ppb	2.99	1.00	70 -	130	110.1	
11	B	2	45	23.46	ppb	1.17	20.00	70 -	130	117.3	
23	Na	1	45	101.40	ppb	0.96	100.00	70 -	130	101.4	
24	Mg	1	45	101.20	ppb	5.97	100.00	70 -	130	101.2	
27	Al	1	45	108.80	ppb	6.69	100.00	70 -	130	108.8	
39	K	1	45	110.90	ppb	3.96	100.00	70 -	130	110.9	
44	Ca	2	45	98.78	ppb	1.00	100.00	70 -	130	98.8	
47	Ti	1	45	4.27	ppb	2.73	5.00	70 -	130	85.3	
51	V	1	45	0.97	ppb	7.08	1.00	70 -	130	97.1	
52	Cr	1	45	4.90	ppb	1.98	5.00	70 -	130	98.0	
55	Mn	1	45	5.33	ppb	1.33	5.00	70 -	130	106.5	
56	Fe	1	72	98.53	ppb	1.89	100.00	70 -	130	98.5	
59	Co	1	72	4.96	ppb	0.96	5.00	70 -	130	99.2	
60	Ni	1	72	5.11	ppb	3.60	5.00	70 -	130	102.3	
63	Cu	1	72	4.61	ppb	2.31	5.00	70 -	130	92.3	
66	Zn	1	72	3.88	ppb	1.78	5.00	70 -	130	77.6	
75	As	1	72	5.22	ppb	2.27	5.00	70 -	130	104.5	
78	Se	1	72	6.32	ppb	4.45	5.00	70 -	130	126.3	
88	Sr	2	115	5.08	ppb	0.67	5.00	70 -	130	101.5	
95	Mo	2	115	5.03	ppb	0.27	5.00	70 -	130	100.5	
107	Ag	2	115	2.07	ppb	1.37	2.00	70 -	130	103.5	
111	Cd	2	115	1.06	ppb	7.39	1.00	70 -	130	105.7	
118	Sn	2	115	5.26	ppb	1.37	5.00	70 -	130	105.1	
121	Sb	2	115	2.31	ppb	3.92	2.00	70 -	130	115.3	
137	Ba	2	115	4.94	ppb	1.92	5.00	70 -	130	98.8	
205	Tl	2	209	1.10	ppb	4.27	1.00	70 -	130	110.0	
208	Pb	2	209	1.02	ppb	3.54	1.00	70 -	130	101.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	5397772.00	0.73	5199131.50	103.8	70 -	120		
45	Sc	1	90091.03	1.83	76810.72	117.3	70 -	120		
45	Sc	2	5097185.00	0.82	5118500.50	99.6	70 -	120		
72	Ge	1	54577.97	1.85	48551.47	112.4	70 -	120		
115	In	2	6053837.00	0.87	6060328.00	99.9	70 -	120		
209	Bi	2	4244254.00	0.91	4203488.50	101.0	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14C20k00.B\076_CCB.D\076_CCB.D#

Date Acquired:	Mar 20 2014 05:36 pm	Sample Name:	**CCB2-140320**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 11:27 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	31100.000	ppb	0.41	2.00	2.00	Failsoil
9	Be	2	45	0.005	ppb	13.67	0.10	0.30	
11	B	2	45	0.975	ppb	3.91	10.00	10.00	
23	Na	1	45	0.411	ppb	1.39	50.00	#####	
24	Mg	1	45	-0.048	ppb	13.98	50.00	#####	
27	Al	1	45	1.937	ppb	16.80	50.00	10.00	
39	K	1	45	5.026	ppb	2.58	50.00	#####	
44	Ca	2	45	-1.157	ppb	2.31	50.00	#####	
47	Ti	1	45	0.014	ppb	114.58	4.00	3.00	
51	V	1	45	0.076	ppb	8.88	4.00	3.00	
52	Cr	1	45	-0.005	ppb	14.51	2.00	2.00	
55	Mn	1	45	0.071	ppb	4.17	2.00	3.00	
56	Fe	1	72	1.290	ppb	3.60	50.00	50.00	
59	Co	1	72	0.014	ppb	4.35	2.00	3.00	
60	Ni	1	72	-0.021	ppb	13.23	2.00	3.00	
63	Cu	1	72	-0.372	ppb	3.76	2.00	2.00	
66	Zn	1	72	-1.533	ppb	17.41	4.00	2.00	
75	As	1	72	0.035	ppb	6.66	2.00	2.00	
78	Se	1	72	-0.086	ppb	41.93	0.60	2.00	
88	Sr	2	115	0.013	ppb	1.91	4.00	3.00	
95	Mo	2	115	0.100	ppb	10.08	2.00	2.00	
107	Ag	2	115	0.001	ppb	21.73	0.40	1.00	
111	Cd	2	115	0.042	ppb	57.82	0.40	0.30	
118	Sn	2	115	0.024	ppb	7.78	4.00	3.00	
121	Sb	2	115	0.116	ppb	8.61	2.00	0.80	
137	Ba	2	115	0.012	ppb	37.15	2.00	3.00	
205	Tl	2	209	0.044	ppb	9.57	2.00	0.50	
208	Pb	2	209	0.009	ppb	4.53	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	5400143.00	1.18	5199131.50	103.9	70 - 120	
45	Sc	1	91695.28	1.65	76810.72	119.4	70 - 120	
45	Sc	2	5055550.50	0.30	5118500.50	98.8	70 - 120	
72	Ge	1	56220.89	1.32	48551.47	115.8	70 - 120	
115	In	2	5963235.50	1.53	6060328.00	98.4	70 - 120	
209	Bi	2	4237721.00	1.58	4203488.50	100.8	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C20k00.B\085SMPL.D\085SMPL.D#

Date Acquired:	Mar 20 2014 06:30 pm	Sample Name:	**1403158-14A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	5.00
Last Cal. Update:	Mar 20 2014 11:27 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	68870.000	ppb	#REF!	0.61	2000.00	OUTCAL
9	Be	2	45	0.003	ppb	#REF!	19.93	2000.00	ND
11	B	2	45	69.510	ppb	#REF!	0.68	2000.00	>RL
23	Na	1	45	25520.000	ppb	#REF!	0.62	25000.00	OUTCAL
24	Mg	1	45	1099.000	ppb	#REF!	1.52	25000.00	>RL
27	Al	1	45	23.720	ppb	#REF!	7.35	10000.00	J
39	K	1	45	414.100	ppb	#REF!	1.69	25000.00	>RL
44	Ca	2	45	21310.000	ppb	#REF!	0.47	25000.00	>RL
47	Ti	1	45	0.308	ppb	#REF!	32.74	2000.00	ND
51	V	1	45	0.264	ppb	#REF!	8.39	2000.00	ND
52	Cr	1	45	-0.008	ppb	#REF!	10.04	2000.00	ND
55	Mn	1	45	1.284	ppb	#REF!	5.46	2000.00	ND
56	Fe	1	72	15.040	ppb	#REF!	5.72	10000.00	ND
59	Co	1	72	0.037	ppb	#REF!	5.09	2000.00	ND
60	Ni	1	72	0.188	ppb	#REF!	13.95	2000.00	ND
63	Cu	1	72	-0.067	ppb	#REF!	4.27	2000.00	ND
66	Zn	1	72	-0.005	ppb	#REF!	8.40	2000.00	ND
75	As	1	72	0.575	ppb	#REF!	3.97	2000.00	ND
78	Se	1	72	11.260	ppb	#REF!	4.50	2000.00	>RL
88	Sr	2	115	60.120	ppb	#REF!	0.34	2000.00	>RL
95	Mo	2	115	11.560	ppb	#REF!	0.22	2000.00	>RL
107	Ag	2	115	-0.001	ppb	#REF!	3.70	500.00	ND
111	Cd	2	115	0.044	ppb	#REF!	27.51	2000.00	ND
118	Sn	2	115	-0.015	ppb	#REF!	18.43	2000.00	ND
121	Sb	2	115	109.900	ppb	#REF!	0.43	500.00	>RL
137	Ba	2	115	10.550	ppb	#REF!	0.34	2000.00	>RL
205	Tl	2	209	0.012	ppb	#REF!	6.55	2000.00	ND
208	Pb	2	209	0.035	ppb	#REF!	10.74	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	5749078.00	0.56	5199131.50	110.6	70 - 120	
45	Sc	1	101037.27	1.70	76810.72	131.5	70 - 120	ISFail
45	Sc	2	5511106.50	0.50	5118500.50	107.7	70 - 120	
72	Ge	1	61112.30	1.87	48551.47	125.9	70 - 120	ISFail
115	In	2	6480316.00	0.17	6060328.00	106.9	70 - 120	
209	Bi	2	4504375.50	0.42	4203488.50	107.2	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14C20k00.B\087CCV1.D\087CCV1.D#

Date Acquired:	Mar 20 2014 06:42 pm	Sample Name:	**CCV3-140320**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 11:27 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	13910.00	ppb	1.40	200.00	90 -	110	6955.0	Fail
9	Be	2	45	209.40	ppb	1.69	200.00	90 -	110	104.7	
11	B	2	45	212.60	ppb	1.29	200.00	90 -	110	106.3	
23	Na	1	45	4912.00	ppb	1.26	5000.00	90 -	110	98.2	
24	Mg	1	45	4896.00	ppb	1.85	5000.00	90 -	110	97.9	
27	Al	1	45	5256.00	ppb	2.48	5000.00	90 -	110	105.1	
39	K	1	45	5118.00	ppb	1.32	5000.00	90 -	110	102.4	
44	Ca	2	45	5256.00	ppb	1.38	5000.00	90 -	110	105.1	
47	Ti	1	45	200.30	ppb	2.56	200.00	90 -	110	100.2	
51	V	1	45	182.70	ppb	2.34	200.00	90 -	110	91.4	
52	Cr	1	45	185.90	ppb	2.19	200.00	90 -	110	93.0	
55	Mn	1	45	199.30	ppb	1.19	200.00	90 -	110	99.7	
56	Fe	1	72	5173.00	ppb	1.26	5000.00	90 -	110	103.5	
59	Co	1	72	189.70	ppb	1.42	200.00	90 -	110	94.9	
60	Ni	1	72	195.70	ppb	1.67	200.00	90 -	110	97.9	
63	Cu	1	72	189.30	ppb	1.60	200.00	90 -	110	94.7	
66	Zn	1	72	200.30	ppb	2.10	200.00	90 -	110	100.2	
75	As	1	72	197.90	ppb	1.93	200.00	90 -	110	99.0	
78	Se	1	72	213.20	ppb	3.08	200.00	90 -	110	106.6	
88	Sr	2	115	205.80	ppb	1.58	200.00	90 -	110	102.9	
95	Mo	2	115	195.00	ppb	2.21	200.00	90 -	110	97.5	
107	Ag	2	115	199.10	ppb	1.99	200.00	90 -	110	99.6	
111	Cd	2	115	193.90	ppb	2.36	200.00	90 -	110	97.0	
118	Sn	2	115	192.30	ppb	1.55	200.00	90 -	110	96.2	
121	Sb	2	115	198.70	ppb	1.89	200.00	90 -	110	99.4	
137	Ba	2	115	192.70	ppb	1.71	200.00	90 -	110	96.4	
205	Tl	2	209	204.10	ppb	1.83	200.00	90 -	110	102.1	
208	Pb	2	209	194.70	ppb	1.68	200.00	90 -	110	97.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	5645895.50	1.18	5199131.50	108.6	70 -	120		
45	Sc	1	94762.70	2.22	76810.72	123.4	70 -	120		ISFail
45	Sc	2	5398347.50	0.29	5118500.50	105.5	70 -	120		
72	Ge	1	57238.53	1.90	48551.47	117.9	70 -	120		
115	In	2	6321958.00	1.32	6060328.00	104.3	70 -	120		
209	Bi	2	4393415.50	1.29	4203488.50	104.5	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14C20k00.B\093LCVL.D\093LCVL.D#

Date Acquired:	Mar 20 2014 07:18 pm	Sample Name:	**LCVL3-140320**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 11:27 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	13990.00	ppb	0.91	5.00	70 -	130	######	Fail
9	Be	2	45	1.11	ppb	4.02	1.00	70 -	130	111.1	
11	B	2	45	22.39	ppb	0.20	20.00	70 -	130	112.0	
23	Na	1	45	94.86	ppb	0.97	100.00	70 -	130	94.9	
24	Mg	1	45	101.30	ppb	3.92	100.00	70 -	130	101.3	
27	Al	1	45	111.30	ppb	3.85	100.00	70 -	130	111.3	
39	K	1	45	102.50	ppb	3.07	100.00	70 -	130	102.5	
44	Ca	2	45	94.51	ppb	1.48	100.00	70 -	130	94.5	
47	Ti	1	45	5.15	ppb	13.99	5.00	70 -	130	103.1	
51	V	1	45	0.98	ppb	1.69	1.00	70 -	130	97.7	
52	Cr	1	45	4.94	ppb	1.97	5.00	70 -	130	98.9	
55	Mn	1	45	5.35	ppb	4.70	5.00	70 -	130	107.1	
56	Fe	1	72	99.03	ppb	2.68	100.00	70 -	130	99.0	
59	Co	1	72	4.87	ppb	1.87	5.00	70 -	130	97.5	
60	Ni	1	72	5.14	ppb	1.11	5.00	70 -	130	102.7	
63	Cu	1	72	4.65	ppb	3.18	5.00	70 -	130	92.9	
66	Zn	1	72	3.30	ppb	1.77	5.00	70 -	130	66.0	Fail
75	As	1	72	5.11	ppb	3.10	5.00	70 -	130	102.2	
78	Se	1	72	6.24	ppb	13.35	5.00	70 -	130	124.8	
88	Sr	2	115	5.07	ppb	0.25	5.00	70 -	130	101.3	
95	Mo	2	115	4.85	ppb	2.29	5.00	70 -	130	96.9	
107	Ag	2	115	2.03	ppb	5.02	2.00	70 -	130	101.5	
111	Cd	2	115	1.07	ppb	6.73	1.00	70 -	130	107.3	
118	Sn	2	115	5.19	ppb	2.19	5.00	70 -	130	103.8	
121	Sb	2	115	2.16	ppb	2.25	2.00	70 -	130	107.8	
137	Ba	2	115	4.94	ppb	1.10	5.00	70 -	130	98.7	
205	Tl	2	209	1.06	ppb	2.05	1.00	70 -	130	106.0	
208	Pb	2	209	1.02	ppb	1.24	1.00	70 -	130	102.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	5671246.00	0.59	5199131.50	109.1	70 -	120		
45	Sc	1	95165.91	2.00	76810.72	123.9	70 -	120		ISFail
45	Sc	2	5430660.00	0.40	5118500.50	106.1	70 -	120		
72	Ge	1	58161.91	1.22	48551.47	119.8	70 -	120		
115	In	2	6451313.50	1.17	6060328.00	106.5	70 -	120		
209	Bi	2	4506666.00	0.30	4203488.50	107.2	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14C20k00.B\095_CCB.D\095_CCB.D#

Date Acquired:	Mar 20 2014 07:30 pm	Sample Name:	**CCB3-140320**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 20 2014 11:27 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	18030.000	ppb	1.84	2.00	2.00	Failsoil
9	Be	2	45	0.001	ppb	11.80	0.10	0.30	
11	B	2	45	0.339	ppb	1.56	10.00	10.00	
23	Na	1	45	-7.631	ppb	3.77	50.00	#####	
24	Mg	1	45	-0.752	ppb	10.33	50.00	#####	
27	Al	1	45	2.244	ppb	2.79	50.00	10.00	
39	K	1	45	0.073	ppb	4.44	50.00	#####	
44	Ca	2	45	-5.833	ppb	7.99	50.00	#####	
47	Ti	1	45	-0.090	ppb	173.20	4.00	3.00	
51	V	1	45	0.055	ppb	4.90	4.00	3.00	
52	Cr	1	45	-0.033	ppb	6.49	2.00	2.00	
55	Mn	1	45	0.039	ppb	14.18	2.00	3.00	
56	Fe	1	72	0.724	ppb	3.59	50.00	50.00	
59	Co	1	72	0.014	ppb	31.38	2.00	3.00	
60	Ni	1	72	-0.025	ppb	39.04	2.00	3.00	
63	Cu	1	72	-0.399	ppb	10.44	2.00	2.00	
66	Zn	1	72	-1.459	ppb	4.12	4.00	2.00	
75	As	1	72	0.040	ppb	20.19	2.00	2.00	
78	Se	1	72	0.041	ppb	25.48	0.60	2.00	
88	Sr	2	115	-0.009	ppb	8.24	4.00	3.00	
95	Mo	2	115	0.067	ppb	10.45	2.00	2.00	
107	Ag	2	115	0.022	ppb	12.07	0.40	1.00	
111	Cd	2	115	0.024	ppb	49.99	0.40	0.30	
118	Sn	2	115	-0.009	ppb	15.37	4.00	3.00	
121	Sb	2	115	0.066	ppb	25.68	2.00	0.80	
137	Ba	2	115	0.003	ppb	7.16	2.00	3.00	
205	Tl	2	209	0.033	ppb	0.79	2.00	0.50	
208	Pb	2	209	0.001	ppb	8.17	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	5749904.00	0.24	5199131.50	110.6	70 - 120	
45	Sc	1	99517.88	2.02	76810.72	129.6	70 - 120	ISFail
45	Sc	2	5479502.50	1.78	5118500.50	107.1	70 - 120	
72	Ge	1	60259.15	1.94	48551.47	124.1	70 - 120	ISFail
115	In	2	6495629.00	1.60	6060328.00	107.2	70 - 120	
209	Bi	2	4606597.00	0.95	4203488.50	109.6	70 - 120	

ICP-MS3_140324B
For

DHL Work Order
1403158

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS3_140324B SOP: Metals-ICP-MS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			x
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			x
P/A Factor	Before ICAL	Increasing trend	X			
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			x
ICSAB (N/A for Method 200.8)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLS and ICSA/ICSAB is N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			x
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%	X			
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%			X	
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%	X			
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)	X			
Dilution Test (SD) - RPD	Every Batch	10	X			
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)	X			

Lab Data Review Check List

EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			X
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> 5% of highest standard	X			
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality			X	X
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

TECHNICAL DIRECTOR / QA MANAGER APPROVAL SIGNATURE AND DATE STAMP:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> MDL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag data / Case narrative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

See notes in Run Log

Analyst: [signature] Date of Completion: 3/25/2014

Second-Level Review: [signature] Reviewer Date Stamp:

REVIEWED
By Evelyn Ferrero at 10:18:30 AM, 3/27/2014

DHL Analytical, Inc.

Run ID: **ICP-MS3_140324B** **Run No.:** 71919

Analytical Run Date: 3/24/2014 **InstrumentID:** ICP-MS3

Analyst: Sara Wieland

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TW	CAL	R71919	3/24/2014 2:00:00 PM		
1/20 ppb STD.	1	ICPMS_TW	CAL	R71919	3/24/2014 2:06:00 PM		
10/200 ppb STD.	1	ICPMS_TW	CAL	R71919	3/24/2014 2:12:00 PM		
50/1000 ppb STD.	1	ICPMS_TW	CAL	R71919	3/24/2014 2:18:00 PM		
100/2000 ppb STD.	1	ICPMS_TW	CAL	R71919	3/24/2014 2:24:00 PM		
250/5000 ppb STD.	1	ICPMS_TW	CAL	R71919	3/24/2014 2:30:00 PM		
500/10000 ppb STD.	1	ICPMS_TW	CAL	R71919	3/24/2014 2:36:00 PM		
2000/25000 ppb STD.	1	ICPMS_TW	CAL	R71919	3/24/2014 2:42:00 PM		
ICSA-140324	1	ICPMS_TW	ICSA	R71919	3/24/2014 3:00:00 PM		
ICSAB-140324	1	ICPMS_TW	ICSB	R71919	3/24/2014 3:06:00 PM		
ICV1-140324	1	6020A_W	ICV	R71919	3/24/2014 3:24:00 PM		
ILCVL-140324	1	6020A_W	LCVL	R71919	3/24/2014 3:36:00 PM		
ICB1-140324	1	6020A_W	ICB	R71919	3/24/2014 3:42:00 PM		
CCV5-140324	1	6020A_W	CCV	R71919	3/25/2014 2:09:00 AM		
LCVL5-140324	1	6020A_W	LCVL	R71919	3/25/2014 2:33:00 AM		
CCB5-140324	1	6020A_W	CCB	R71919	3/25/2014 2:46:00 AM		
MB-62459	1	6020A_W	MBLK	62459	3/25/2014 2:52:00 AM		
LCS-62459	1	6020A_W	LCS	62459	3/25/2014 2:58:00 AM		
LCSD-62459	1	6020A_W	LCSD	62459	3/25/2014 3:04:00 AM		
ICSA-140324	1	ICPMS_TW	ICSA	R71919	3/25/2014 3:10:00 AM		
ICSAB-140324	1	ICPMS_TW	ICSB	R71919	3/25/2014 3:16:00 AM		
1403188-01A	1	6020A_W	SAMP	62459	3/25/2014 3:40:00 AM		
1403188-01A SD	5	6020A_W	SD	62459	3/25/2014 3:46:00 AM		
1403188-02A	1	6020A_W	SAMP	62459	3/25/2014 3:52:00 AM		
1403188-03A	1	6020A_W	SAMP	62459	3/25/2014 3:58:00 AM		
1403188-04A	1	6020A_W	SAMP	62459	3/25/2014 4:04:00 AM		
1403158-19A	1	6020A_W	SAMP	62459	3/25/2014 4:10:00 AM		
1403158-20A	1	6020A_W	SAMP	62459	3/25/2014 4:16:00 AM		
1403158-21A	1	6020A_W	SAMP	62459	3/25/2014 4:22:00 AM		
1403158-22A	1	6020A_W	SAMP	62459	3/25/2014 4:28:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140317	ICPMS CCV 200/5000 PPB		06/15/2014
MET-H2CAL-1403	ICPMS High Cal2 2000ppb std 8		06/15/2014
MET-HCAL-14031	ICPMS High Cal 500ppb/10ppm s		06/15/2014
MET-ICV-140130	ICPMS ICV 100 ppb		04/30/2014
MET-IS-140130	INTERNAL STANDARD 1 PPM		04/30/2014
MET-L2CAL-14031	ICPMS Low Cal2 1/20ppb std 2		06/15/2014
MET-LCAL-140317	ICPMS Low Cal 10/200ppb std 3		06/15/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		06/15/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		06/15/2014
MET-MCAL-14031	ICPMS Mid Cal 250/5000ppb std		06/15/2014
MET-PA-130501	ICPMS PA FACTOR SOLUTION		05/01/2014
MET-PDS-140307	250 PPM Naturals+Al+Fe PDS		06/05/2014
MET-PDS-140311-	10 PPM CUSTOM PDS SOLUTI		06/09/2014
MET-PDS-140311-	10 PPM Ag+Sb PDS		06/09/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		05/11/2014

DHL Analytical, Inc.

Run ID: ICP-MS3_140324B **Run No.:** 71919

1403158-23A	1	6020A_W	SAMP	62459	3/25/2014 4:34:00 AM		
1403158-24A	1	6020A_W	SAMP	62459	3/25/2014 4:41:00 AM		
1403188-01A PDS	1	6020A_W	PDS	62459	3/25/2014 4:47:00 AM		
1403188-01A MS	1	6020A_W	MS	62459	3/25/2014 4:53:00 AM		
1403188-01A MSD	1	6020A_W	MSD	62459	3/25/2014 4:59:00 AM		
CCV6-140324	1	6020A_W	CCV	R71919	3/25/2014 5:05:00 AM		
LCVL6-140324	1	6020A_W	LCVL	R71919	3/25/2014 5:41:00 AM		
CCB6-140324	1	6020A_W	CCB	R71919	3/25/2014 5:53:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140317	ICPMS CCV 200/5000 PPB		06/15/2014
MET-H2CAL-1403	ICPMS High Cal2 2000ppb std 8		06/15/2014
MET-HCAL-14031	ICPMS High Cal 500ppb/10ppm s		06/15/2014
MET-ICV-140130	ICPMS ICV 100 ppb		04/30/2014
MET-IS-140130	INTERNAL STANDARD 1 PPM		04/30/2014
MET-L2CAL-14031	ICPMS Low Cal2 1/20ppb std 2		06/15/2014
MET-LCAL-140317	ICPMS Low Cal 10/200ppb std 3		06/15/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		06/15/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		06/15/2014
MET-MCAL-14031	ICPMS Mid Cal 250/5000ppb std		06/15/2014
MET-PA-130501	ICPMS PA FACTOR SOLUTION		05/01/2014
MET-PDS-140307	250 PPM Naturals+Al+Fe PDS		06/05/2014
MET-PDS-140311-	10 PPM CUSTOM PDS SOLUTI		06/09/2014
MET-PDS-140311-	10 PPM Ag+Sb PDS		06/09/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		05/11/2014

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		CALBEG	Start of CALIB						
2	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
3	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
4	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
5	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
6	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
7	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
8	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		1/20 ppb STD.	CAL ICPMS_TW	Level 2				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		10/200 ppb STD.	CAL ICPMS_TW	Level 3				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		50/1000 ppb STD.	CAL ICPMS_TW	Level 4				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		100/2000 ppb STD.	CAL ICPMS_TW	Level 5				
15	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		250/5000 ppb STD.	CAL ICPMS_TW	Level 6				
16	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		500/10000 ppb STD.	CAL ICPMS_TW	Level 7				
17	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		2000/25000 ppb STD.	CAL ICPMS_TW	Level 8				
18	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
19	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
20		Keyword		CALEND	End of CALIB						
21		Keyword		ICSBEG	Start of ICS						
22	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-140324	ICSAICPMS_TW	1.000				
23	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-140324	ICSBICPMS_TW	1.000				
24	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
25	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
26		Keyword		ICSEND	End of ICS						
27		Keyword		SMPLBEG	Start of SMPL						
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-140324	ICV ICPMS_TW	1.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	2101		ICB1-140324	ICB ICPMS_TW	1.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		ILCVL-140324	LCVL6020A_W	1.000				
31	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		ILCVL-140324	LCVL6020A_W	1.000				
32	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000	Level 1			
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
36	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
37	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		1/20 ppb STD.	CAL ICPMS_TW	Level 2				
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		10/200 ppb STD.	CAL ICPMS_TW	Level 3				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		50/1000 ppb STD.	CAL ICPMS_TW	Level 4				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		100/2000 ppb STD.	CAL ICPMS_TW	Level 5				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		250/5000 ppb STD.	CAL ICPMS_TW	Level 6				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		500/10000 ppb STD.	CAL ICPMS_TW	Level 7				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		2000/25000 ppb STD.	CAL ICPMS_TW	Level 8				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-140324	ICSAICPMS_TW	1.000				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-140324	ICSBICPMS_TW	1.000				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
49	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-140324	ICV ICPMS_TW	1.000				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	2101		ICB1-140324	ICB ICPMS_TW	1.000				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		ILCVL-140324	LCVL6020A_W	1.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1105		ICB1-140324	ICB ICPMS_TW	1.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2201		MB-62454	MBLK200.8	1.000				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2202		LCS-62454	LCS 200.8	1.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2203		LCSD-62454	LCSD200.8	1.000				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2201		MB-62454	MBLK200.8	1.000				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2204		1403162-04A	SAMP200.8	1.000				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2205		1403162-04A SD	SD 200.8	5.000				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2206		1403159-01A	SAMP200.8	1.000				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2207		1403137-01A	SAMP200.8	1.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2208		1403156-01C	SAMP200.8	1.000				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2209		1403156-02C	SAMP200.8	1.000				
65	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2210		1403178-01C	SAMP200.8	1.000				
66	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2211		1403162-03A	SAMP200.8	1.000				
67	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2212		1403150-06A	SAMP200.8	1.000				
68	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2301		1403150-12A	SAMP200.8	1.000				
69	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2302		1403173-01A	SAMP200.8	1.000				
70	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2303		1403162-04A PDS	PDS 200.8	1.000				
71	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS W	2304		1403162-04A MS	MS 200.8	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
72	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2305		1403162-04A MSD	MSD 200.8	1.000				
73	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-140324	CCV ICPMS_TW	1.000				
74	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	2112		CCV1-140324	CCV ICPMS_TW	1.000				
75	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1306		CCV1-140324	CCV ICPMS_TW	1.000				
76	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB1-140324	CCB ICPMS_TW	1.000				
77	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB1-140324	CCB ICPMS_TW	1.000				
78	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2510		LCVL1-140324	LCVL6020A_W	1.000				
79	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL1-140324	LCVL6020A_W	1.000				
80	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB1-140324	CCB ICPMS_TW	1.000				
81	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-140324	CCB ICPMS_TW	1.000				
82	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2306		1403173-02A	SAMP200.8	1.000				
83	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2307		1403143-01A	SAMP200.8	1.000				
84	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2308		1403146-01A	SAMP200.8	1.000				
85	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2309		1403146-02A	SAMP200.8	1.000				
86	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2310		1403146-03A	SAMP200.8	1.000				
87	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2311		1403146-04A	SAMP200.8	1.000				
88	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2312		1403146-05A	SAMP200.8	1.000				
89	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2401		1403146-06A	SAMP200.8	1.000				
90	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2402		1403146-07A	SAMP200.8	1.000				
91	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-140324	CCV ICPMS_TW	1.000				
92	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	2112		CCV2-140324	CCV ICPMS_TW	1.000				
93	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1306		CCV2-140324	CCV ICPMS_TW	1.000				
94	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB2-140324	CCB ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
95	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB2-140324	CCB ICPMS_TW	1.000				
96	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL2-140324	LCVL6020A_W	1.000				
97	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL2-140324	LCVL6020A_W	1.000				
98	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB2-140324	CCB ICPMS_TW	1.000				
99	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-140324	CCB ICPMS_TW	1.000				
100	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2501		MB-62467	MBLKICPMS_TW	1.000				
101	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2502		LCS-62467	LCS ICPMS_TW	1.000				
102	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2503		LCSD-62467	LCSDICPMS_TW	1.000				
103	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
104	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2504		1403182-01A	SAMPICPMS_TW	1.000				
105	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2505		1403182-01A SD	SD ICPMS_TW	5.000				
106	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2506		1403182-02A	SAMPICPMS_TW	1.000				
107	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2507		1403182-03A	SAMPICPMS_TW	1.000				
108	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2508		1403182-04A	SAMPICPMS_TW	1.000				
109	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2509		1403182-05A	SAMPICPMS_TW	1.000				
110	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2510		1403182-01A PDS	PDS ICPMS_TW	1.000				
111	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-140324	CCV ICPMS_TW	1.000				
112	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	2112		CCV3-140324	CCV ICPMS_TW	1.000				
113	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1306		CCV3-140324	CCV ICPMS_TW	1.000				
114	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB3-140324	CCB ICPMS_TW	1.000				
115	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB3-140324	CCB ICPMS_TW	1.000				
116	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL3-140324	LCVL6020A_W	1.000				
117	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL3-140324	LCVL6020A_W	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
118	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB3-140324	CCB ICPMS_TW	1.000				
119	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-140324	CCB ICPMS_TW	1.000				
120	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3101		1403170-01A	SAMPICPMS_TW	10.00				
121	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3102		1403170-05A	SAMPICPMS_TW	100.0				
122	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3103		1403170-08A	SAMPICPMS_TW	10.00				
123	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3104		1403170-12A	SAMPICPMS_TW	10.00				
124	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3105		1403170-02A	SAMPICPMS_TW	1.000				
125	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3106		1403170-03A	SAMPICPMS_TW	1.000				
126	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3107		1403170-04A	SAMPICPMS_TW	1.000				
127	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3108		1403170-06A	SAMPICPMS_TW	1.000				
128	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3109		1403170-07A	SAMPICPMS_TW	1.000				
129	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3110		1403170-09A	SAMPICPMS_TW	1.000				
130	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-140324	CCV ICPMS_TW	1.000				
131	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	2112		CCV4-140324	CCV ICPMS_TW	1.000				
132	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1306		CCV4-140324	CCV ICPMS_TW	1.000				
133	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB4-140324	CCB ICPMS_TW	1.000				
134	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB4-140324	CCB ICPMS_TW	1.000				
135	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL4-140324	LCVL6020A_W	1.000				
136	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL4-140324	LCVL6020A_W	1.000				
137	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB4-140324	CCB ICPMS_TW	1.000				
138	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB4-140324	CCB ICPMS_TW	1.000				
139	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	3201		MB-62455	MBLKICPMS_TW	1.000				
140	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	3202		LCS-62455	LCS ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
141	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	3203		LCSD-62455	LCSDICPMS_TW	1.000				
142	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
143	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3204		1403177-01A	SAMPICPMS_TW	1.000				
144	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3205		1403177-01A SD	SD ICPMS_TW	5.000				
145	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3206		1403180-16C	SAMPICPMS_TW	1.000				
146	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3207		1403170-01A	SAMPICPMS_TW	1.000				
147	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3208		1403170-05A	SAMPICPMS_TW	1.000				
148	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3209		1403170-08A	SAMPICPMS_TW	1.000				
149	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3210		1403170-12A	SAMPICPMS_TW	1.000				
150	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3211		1403170-10A	SAMPICPMS_TW	1.000				
151	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3212		1403170-11A	SAMPICPMS_TW	1.000				
152	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3301		1403177-01A PDS	PDS ICPMS_TW	1.000				
153	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	3302		1403177-01A MS	MS ICPMS_TW	1.000				
154	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	3303		1403177-01A MSD	MSD ICPMS_TW	1.000				
155	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV5-140324	CCV ICPMS_TW	1.000				
156	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	2112		CCV5-140324	CCV ICPMS_TW	1.000				
157	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1306		CCV5-140324	CCV ICPMS_TW	1.000				
158	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB5-140324	CCB ICPMS_TW	1.000				
159	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB5-140324	CCB ICPMS_TW	1.000				
160	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2411		LCVL5-140324	LCVL6020A_W	1.000				
161	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2412		LCVL5-140324	LCVL6020A_W	1.000				
162	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB5-140324	CCB ICPMS_TW	1.000				
163	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-140324	CCB ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
164	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	3401		MB-62459	MBLK6020A_W	1.000				
165	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	3402		LCS-62459	LCS 6020A_W	1.000				
166	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	3403		LCSD-62459	LCSD6020A_W	1.000				
167	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
168	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3404		1403188-01A	SAMP6020A_W	1.000				
169	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3405		1403188-01A SD	SD 6020A_W	5.000				
170	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3406		1403188-02A	SAMP6020A_W	1.000				
171	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3407		1403188-03A	SAMP6020A_W	1.000				
172	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3408		1403188-04A	SAMP6020A_W	1.000				
173	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3409		1403158-19A	SAMP6020A_W	1.000				
174	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3410		1403158-20A	SAMP6020A_W	1.000				
175	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3411		1403158-21A	SAMP6020A_W	1.000				
176	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3412		1403158-22A	SAMP6020A_W	1.000				
177	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3501		1403158-23A	SAMP6020A_W	1.000				
178	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3502		1403158-24A	SAMP6020A_W	1.000				
179	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3503		1403188-01A PDS	PDS 6020A_W	1.000				
180	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	3504		1403188-01A MS	MS 6020A_W	1.000				
181	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	3505		1403188-01A MSD	MSD 6020A_W	1.000				
182	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV6-140324	CCV ICPMS_TW	1.000				
183	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	2112		CCV6-140324	CCV ICPMS_TW	1.000				
184	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1306		CCV6-140324	CCV ICPMS_TW	1.000				
185	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB6-140324	CCB ICPMS_TW	1.000				
186	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB6-140324	CCB ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
187	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2411		LCVL6-140324	LCVL6020A_W	1.000				
188	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2412		LCVL6-140324	LCVL6020A_W	1.000				
189	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB6-140324	CCB ICPMS_TW	1.000				
190	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB6-140324	CCB ICPMS_TW	1.000				
191		Keyword		StandBy							
192		Keyword		SMPLEND	End of SMPL						
193		Keyword		End	End of Sequence						
194		Keyword		CCVBEG	Start of CCV						
195		Keyword		CCVEND	End of CCV						
196		Keyword		BLKBEG	Start of BLANK						
197		Keyword		BLKEND	End of BLANK						
198		Keyword		ERRBEG	Start of ERRTERM						
199		Keyword		ERREND	End of ERRTERM						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **3/24/2014 9:20:04 AM**
Digestion: **Start: 3/24/2014 10:30:00 AM / Stop: 3/24/2014 3:20:00 PM**
Prep End Date: **3/24/2014 3:24:06 PM**

Prep Batch **62459** Prep Code: **3005A** Technician: **James McNeely**

Prep Factor Units: **mL/mL**

Equipment List
Thermometer #77
Hot Block #3

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1403158-19A	Aqueous		50	50	1.000	1 of 1
1403158-20A	Aqueous		50	50	1.000	1 of 1
1403158-21A	Aqueous		50	50	1.000	1 of 1
1403158-22A	Aqueous		50	50	1.000	1 of 1
1403158-23A	Aqueous		50	50	1.000	1 of 1
1403158-24A	Aqueous		50	50	1.000	1 of 1
1403188-01A	Aqueous		50	50	1.000	1 of 1
1403188-01A MS	Aqueous		50	50	1.000	of
1403188-01A MSD	Aqueous		50	50	1.000	of
1403188-01A PDS	Aqueous		50	50	1.000	of
1403188-01A SD	Aqueous		50	50	1.000	of
1403188-02A	Aqueous		50	50	1.000	1 of 1
1403188-03A	Aqueous		50	50	1.000	1 of 1
1403188-04A	Aqueous		50	50	1.000	1 of 1
LCS-62459	Aqueous		50	50	1.000	of
LCSD-62459	Aqueous		50	50	1.000	of
MB-62459	Aqueous		50	50	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
7646	Digestion Vessels	69	ml	06/21/2014
7683	HCL (Trace Grade)	1	ml	08/09/2016
7684	Nitric Acid (Trace Metal Grade)	1	ml	08/07/2015

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-140109-01	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/06/2015
MET-140109-02	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/10/2015
MET-SPIKE-140303	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	04/03/2014
MET-SPIKE-140313-01	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MS	0.2	04/13/2014
MET-SPIKE-140313-02	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	04/13/2014

REVIEWED
By Evelyn Ferrero at 10:19:06 AM, 3/27/2014

Calibration Summary Report

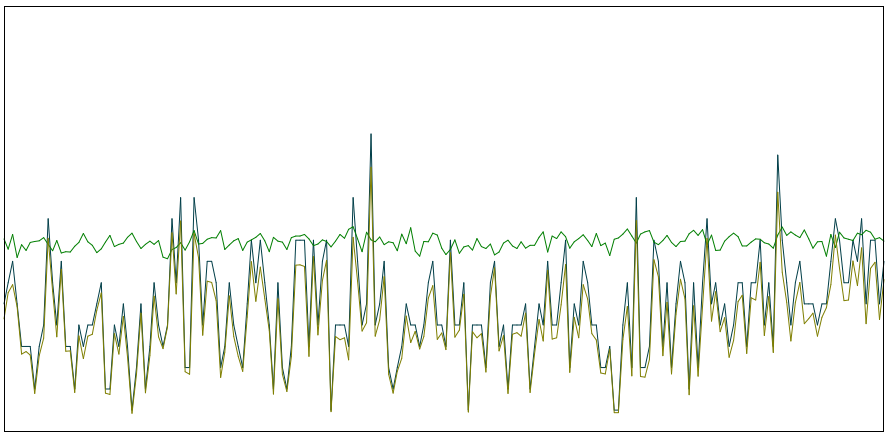
Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3Fe.C
Last Update: Mar 24 2014 03:00 pm
Cal Type: Y=aX+[blank]

Standard	Date Acquired	File
BLANK STD 1	Mar 24 2014 02:00 pm	c:\icpchem\1\data\14c24k01.b\031calb.d\
1/20 ppb STD.	Mar 24 2014 02:06 pm	c:\icpchem\1\data\14c24k01.b\032cals.d\
10/200 ppb STD.	Mar 24 2014 02:12 pm	c:\icpchem\1\data\14c24k01.b\033cals.d\
50/1000 ppb STD.	Mar 24 2014 02:18 pm	c:\icpchem\1\data\14c24k01.b\034cals.d\
100/2000 ppb STD.	Mar 24 2014 02:24 pm	c:\icpchem\1\data\14c24k01.b\035cals.d\
250/5000 ppb STD.	Mar 24 2014 02:30 pm	c:\icpchem\1\data\14c24k01.b\036cals.d\

Element Name	Corr Coef	Coef A	Coef B	Lvl 2	Lvl 6	Lvl 7	L7 %R	Lvl 8	L8 %R
Li	-0.7739	-0.0001928	11.01	-405.20	1,074	-79		2032	
Be	0.9999	0.07952	0.003601	0.93	256	496	99%	--------	######
B	0.9999	0.0517	0.1196	1.01	257	528	106%	1,992	100%
Na	1.0000	0.2895	11.68	19.18	4,924	9,913	99%	25,050	100%
Mg	0.9997	0.1348	0.5759	19.10	4,825	9,497	95%	25,240	101%
Al	1.0000	0.03491	0.1559	31.66	5,046	9,978	100%	--------	######
K	0.9999	0.06637	7.668	17.50	4,894	9,742	97%	25,130	101%
Ca	1.0000	0.008053	0.2277	17.16	4,783	10,010	100%	25,050	100%
Ti	1.0000	0.0276	0.004204	0.97	257	509	102%	1,997	100%
V	1.0000	1.231	0.2641	0.93	244	483	97%	2,005	100%
Cr	1.0000	1.552	0.2712	0.96	245	484	97%	2,005	100%
Mn	1.0000	0.5834	0.08707	0.89	254	505	101%	1,998	100%
Fe	0.9999	1.922	5.976	19.07	5,124	9,920	99%	--------	######
Co	1.0000	4.738	0.1299	0.93	249	491	98%	2,002	100%
Ni	1.0000	1.345	0.1212	0.95	255	505	101%	1,998	100%
Cu	1.0000	3.788	0.8546	1.75	252	492	98%	2,002	100%
Zn	1.0000	0.336	0.3871	1.63	260	509	102%	1,996	100%
As	1.0000	0.1959	0.04736	0.92	253	500	100%	2,000	100%
Se	1.0000	0.008855	0.007765	0.60	258	506	101%	1,997	100%
Sr	1.0000	0.3017	0.02777	0.96	258	517	103%	1,995	100%
Mo	1.0000	0.05507	0.01277	0.93	247	502	100%	--------	######
Ag	0.9999	0.1326	0.003019	0.94	243	504	101%	--------	######
Cd	1.0000	0.02685	0.001492	0.93	244	490	98%	2,003	100%
Sn	1.0000	0.08077	0.01551	0.89	242	493	99%	2,003	100%
Sb	0.9998	0.1035	0.004365	0.91	242	505	101%	--------	######
Ba	1.0000	0.04151	0.002926	0.93	243	491	98%	2,003	100%
Tl	0.9999	0.2932	0.01586	0.89	260	516	103%	1,995	100%
Pb	1.0000	0.3974	0.02665	0.95	248	509	102%	1,998	100%

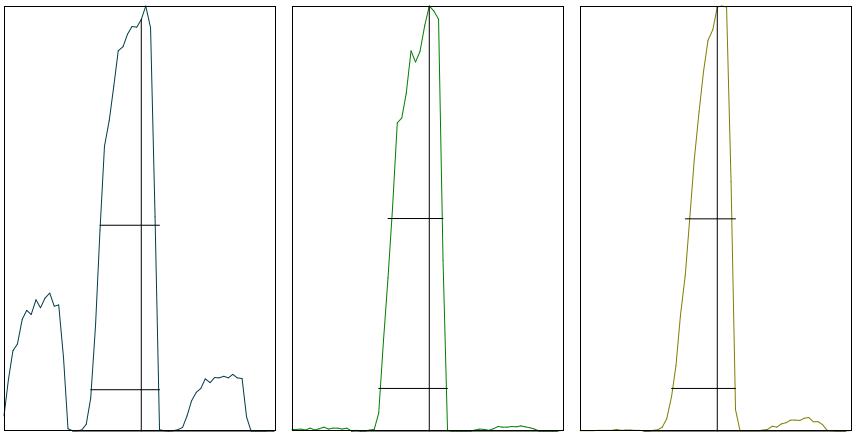
Tune Report

Tune File : He.U
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.2000 sec	
n:	200	
Oxide:	156/140	0.242%
Doubly Charged:	70/140	2.570%

m/z	Range	Count	Mean	RSD%	Background
51	20	8.0	5.8	41.48	0.10
59	5,000	2237.0	2234.1	3.55	0.30
51/59	1	0.358%	0.258%	40.93	



m/z:	59	89	205
Height:	2,258	952	3,445
Axis:	59.05	89.05	205.05
W-50%:	0.65	0.60	0.55
W-10%:	0.7500	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.5600 sec

Y axis : Linear

Generated : Mar 24, 2014 10:42:04
Printed : Mar 24, 2014 10:42:06

Tune Report

Tune File : He.U
Comment :

Tuning Parameters

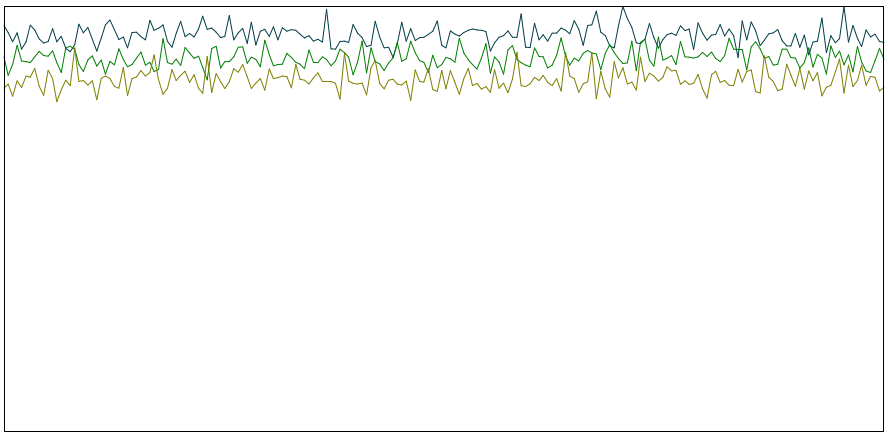
===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1550	W	Extract 1	:	0	V	AMU Gain	:	121	
RF Matching	:	1.7	V	Extract 2	:	-125	V	AMU Offset	:	121	
Smpl Depth	:	10	mm	Omega Bias-ce	:	-22	V	Axis Gain	:	0.9993	
Torch-H	:	-0.1	mm	Omega Lens-ce	:	0	V	Axis Offset	:	-0.06	
Torch-V	:	1.1	mm	Cell Entrance	:	-40	V	QP Bias	:	-16	V
Carrier Gas	:	1.15	L/min	QP Focus	:	-9	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1710	V
Sample Pump	:	---	rps	OctP RF	:	200	V	Pulse HV	:	1080	V
S/C Temp	:	2	degC	OctP Bias	:	-18	V				

===Reaction Cell===											
Reaction Mode	:	ON									
H2 Gas	:	0	mL/min	He Gas	:	4.6	mL/min	Optional Gas	:	---	%

Generated : Mar 24, 2014 10:42:04
Printed : Mar 24, 2014 10:42:08

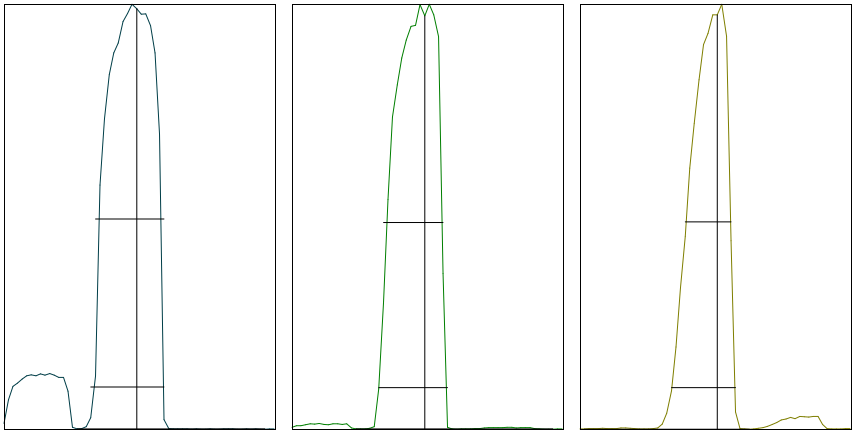
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.8200 sec	
n:	200	
Oxide:	156/140	1.102%
Doubly Charged:	70/140	2.942%

m/z	Range	Count	Mean	RSD%	Background
7	10,000	9150.0	9327.1	2.36	8.70
89	20,000	17514.0	17570.0	2.35	8.70
205	10,000	8102.0	8271.6	2.90	16.60
156/140	2	0.891%	1.105%	9.20	
70/140	5	2.723%	2.909%	6.57	
23	50,000	27454.0	27555.8	2.05	8.10
80	500,000	428967.0	425975.0	0.56	7.40



m/z:	7	89	205
Height:	9,220	17,346	8,448
Axis:	7.00	89.00	205.05
W-50%:	0.75	0.65	0.50
W-10%:	0.800	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.7600 sec

Y axis : Linear

Generated : Mar 24, 2014 10:37:18
Printed : Mar 24, 2014 10:37:20

Tune Report

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1550	W	Extract 1	:	0	V	AMU Gain	:	121	
RF Matching	:	1.7	V	Extract 2	:	-125	V	AMU Offset	:	121	
Smpl Depth	:	10	mm	Omega Bias-ce	:	-22	V	Axis Gain	:	0.9993	
Torch-H	:	-0.1	mm	Omega Lens-ce	:	0	V	Axis Offset	:	-0.06	
Torch-V	:	1.1	mm	Cell Entrance	:	-40	V	QP Bias	:	-3	V
Carrier Gas	:	1.15	L/min	QP Focus	:	2	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1710	V
Sample Pump	:	---	rps	OctP RF	:	200	V	Pulse HV	:	1080	V
S/C Temp	:	2	degC	OctP Bias	:	-6	V				

===Reaction Cell===

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

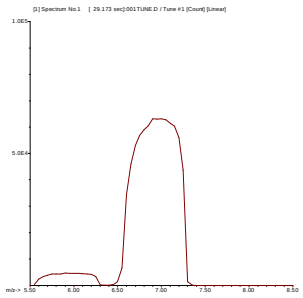
Generated : Mar 24, 2014 10:37:18
Printed : Mar 24, 2014 10:37:22

6020 QC Tune Report

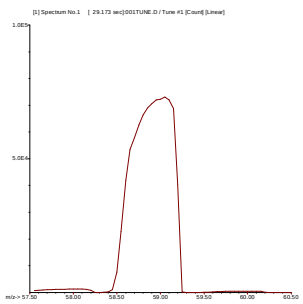
Data File: C:\ICPCHEM\1\DATA\14C24k00.B\001TUNE.D
Date Acquired: Mar 24 2014 10:48 am
Acq. Method: TN6020.M
Operator: SW
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

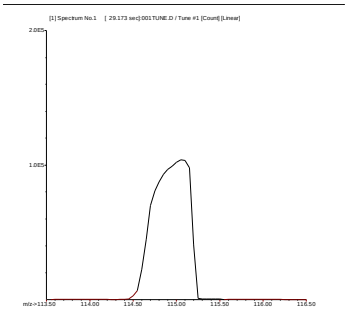
Element	Actual	Required	Flag
7 Li	2.36	5.00	
59 Co	3.06	5.00	
115 In	4.32	5.00	
205 Tl	1.85	5.00	



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:



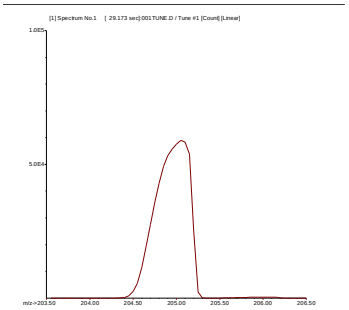
115 In

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:	205.05	
Required:	204.90 -	205.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	

P/A Factor Tuning Report

Acquired:Mar 24 2014 10:45 am

Mass[amu]	Element	P/A Factor
6	Li	0.072848
23	Na	0.086887
24	Mg	0.090412
27	Al	0.092939
39	K	0.093374
44	Ca	Sensitivity too low
45	Sc	0.094490
47	Ti	Sensitivity too low
51	V	0.095851
52	Cr	0.098292
55	Mn	0.099600
59	Co	0.102118
60	Ni	0.103328
63	Cu	0.104736
66	Zn	0.104659
72	Ge	0.103666
75	As	0.103088
78	Se	Sensitivity too low
88	Sr	0.103815
95	Mo	0.103201
106	(Cd)	0.107590
107	Ag	Sensitivity too low
108	(Cd)	0.107746
111	Cd	0.108362
115	In	0.108074
118	Sn	0.108111
121	Sb	0.107902
137	Ba	Sensitivity too low
205	Tl	0.114056
206	(Pb)	0.113914
207	(Pb)	0.114098
208	Pb	0.113837
209	Bi	0.113816
238		0.113730

===Detector Parameters===
Discriminator: 8.0 mV
Analog HV: 1710 V
Pulse HV: 1080 V

Calibration Blank QC Report

Acq. Method: DHL_3Fe.M Sample Name: BLANK STD 1
Operator: SW Instrument: ICPMS3
Last Cal. Update: Mar 24 2014 12:33 pm
Date Acquired: Mar 24 2014 02:00 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	2847198.00	A	46660.00	1.64
7	Li	2	45	210713.80	P	1041.00	0.49
9	Be	2	45	68.89	P	23.65	34.33
11	B	2	45	2288.09	P	58.74	2.57
23	Na	1	45	4994.52	P	60.68	1.21
24	Mg	1	45	246.68	P	21.86	8.86
27	Al	1	45	66.67	P	3.53	5.29
39	K	1	45	3280.57	P	61.12	1.86
44	Ca	2	45	4355.38	P	148.80	3.42
45	Sc	1	---	85579.54	P	2285.00	2.67
45	Sc	2	---	3826009.00	A	585.00	0.02
47	Ti	1	45	1.78	P	2.04	114.58
51	V	1	45	112.89	P	13.15	11.65
51	V	2	---		P		
52	Cr	1	45	116.00	P	14.85	12.80
55	Mn	1	45	37.33	P	5.81	15.57
56	Fe	1	72	1510.79	P	74.68	4.94
59	Co	1	72	32.89	P	6.30	19.16
60	Ni	1	72	30.67	P	6.93	22.59
60	Ni	2	---		P		
63	Cu	1	72	216.01	P	4.00	1.85
63	Cu	2	---		P		
66	Zn	1	72	97.78	P	11.34	11.60
66	Zn	2	---		P		
72	Ge	1	---	50553.60	P	897.10	1.77
72	Ge	2	---		P		
75	As	1	72	11.96	P	0.53	4.39
78	Se	1	72	1.96	P	0.17	8.65
88	Sr	2	###	664.49	P	44.02	6.62
95	Mo	2	###	305.57	P	32.89	10.76
107	Ag	2	###	72.23	P	6.94	9.61
111	Cd	2	###	35.70	P	2.84	7.97
115	In	2	---	4785742.00	A	6809.00	0.14
118	Sn	2	###	371.13	P	68.10	18.35
121	Sb	2	###	104.45	P	8.39	8.03
137	Ba	2	###	70.00	P	14.53	20.76
205	Tl	2	###	256.68	P	23.09	9.00
208	Pb	2	###	431.13	P	28.74	6.67
209	Bi	2	---	3235410.00	A	9410.00	0.29

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 1/20 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Mar 24 2014 02:06 pm
Last Cal. Update: Mar 24 2014 02:03 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	2816618.00	A	7333.00	0.26	
7	Li	2	45	209791.59	P	2549.00	1.22	
9	Be	2	45	1469.04	P	100.00	6.81	
11	B	2	45	3248.32	P	180.90	5.57	
23	Na	1	45	7453.61	P	130.50	1.75	
24	Mg	1	45	1364.57	P	114.20	8.37	
27	Al	1	45	545.80	P	17.40	3.19	
39	K	1	45	3819.64	P	80.04	2.10	
44	Ca	2	45	6918.87	P	137.60	1.99	
45	Sc	1	---	86545.47	P	2356.00	2.72	
45	Sc	2	---	3782367.00	A	29850.00	0.79	
47	Ti	1	45	13.33	P	1.33	10.00	
51	V	1	45	610.69	P	56.00	9.17	
51	V	2	---		P			
52	Cr	1	45	760.92	P	46.58	6.12	
55	Mn	1	45	263.12	P	33.48	12.72	
56	Fe	1	72	10746.15	P	119.70	1.11	
59	Co	1	72	1143.18	P	18.49	1.62	
60	Ni	1	72	352.90	P	12.60	3.57	
60	Ni	2	---		P			
63	Cu	1	72	1890.84	P	73.01	3.86	
63	Cu	2	---		P			
66	Zn	1	72	235.56	P	21.10	8.96	
66	Zn	2	---		P			
72	Ge	1	---	50413.71	P	910.50	1.81	
72	Ge	2	---		P			
75	As	1	72	57.44	P	2.11	3.67	
78	Se	1	72	3.30	P	0.65	19.75	
88	Sr	2	115	7467.06	P	170.00	2.28	
95	Mo	2	115	1503.49	P	50.35	3.35	
107	Ag	2	115	3002.73	P	74.01	2.46	
111	Cd	2	115	621.64	P	66.68	10.73	
115	In	2	---	4702899.00	A	4724.00	0.10	
118	Sn	2	115	2050.26	P	65.08	3.17	
121	Sb	2	115	2311.44	P	16.43	0.71	
137	Ba	2	115	980.08	P	51.75	5.28	
205	Tl	2	209	4465.52	P	65.86	1.47	
208	Pb	2	209	6477.68	P	234.70	3.62	
209	Bi	2	---	3209668.00	A	33460.00	1.04	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2		2816618.50	0.26	2847198.30	98.9	70 -	120	
45	Sc	1		86545.48	2.72	85579.54	101.1	70 -	120	
45	Sc	2		3782367.30	0.79	3826008.80	98.9	70 -	120	
72	Ge	1		50413.71	1.81	50553.60	99.7	70 -	120	
115	In	2		4702898.50	0.10	4785742.00	98.3	70 -	120	
209	Bi	2		3209668.30	1.04	3235410.00	99.2	70 -	120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 10/200 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Mar 24 2014 02:12 pm
Last Cal. Update: Mar 24 2014 02:09 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	2808437.00	A	16490.00	0.59	
7	Li	2	45	207649.41	P	2205.00	1.06	
9	Be	2	45	14949.35	P	264.20	1.77	
11	B	2	45	11832.62	P	103.70	0.88	
23	Na	1	45	28631.45	P	958.90	3.35	
24	Mg	1	45	11033.05	P	295.80	2.68	
27	Al	1	45	2964.85	P	187.00	6.31	
39	K	1	45	8714.53	P	338.10	3.88	
44	Ca	2	45	32576.98	P	374.50	1.15	
45	Sc	1	---	86660.05	P	1617.00	1.87	
45	Sc	2	---	3689576.00	A	17980.00	0.49	
47	Ti	1	45	116.45	P	10.78	9.26	
51	V	1	45	5028.65	P	101.10	2.01	
51	V	2	---		P			
52	Cr	1	45	6410.20	P	233.80	3.65	
55	Mn	1	45	2501.63	P	26.24	1.05	
56	Fe	1	72	96025.44	P	2199.00	2.29	
59	Co	1	72	11503.30	P	430.00	3.74	
60	Ni	1	72	3486.77	P	52.74	1.51	
60	Ni	2	---		P			
63	Cu	1	72	9627.02	P	261.80	2.72	
63	Cu	2	---		P			
66	Zn	1	72	956.94	P	37.34	3.90	
66	Zn	2	---		P			
72	Ge	1	---	50686.33	P	659.40	1.30	
72	Ge	2	---		P			
75	As	1	72	485.45	P	13.97	2.88	
78	Se	1	72	23.04	P	1.93	8.39	
88	Sr	2	115	68542.66	P	727.30	1.06	
95	Mo	2	115	12080.90	P	141.90	1.17	
107	Ag	2	115	29369.20	P	605.70	2.06	
111	Cd	2	115	6117.52	P	340.50	5.57	
115	In	2	---	4637526.00	A	48190.00	1.04	
118	Sn	2	115	17931.88	P	392.40	2.19	
121	Sb	2	115	22782.50	P	282.20	1.24	
137	Ba	2	115	9276.29	P	279.90	3.02	
205	Tl	2	209	43689.40	P	683.30	1.56	
208	Pb	2	209	60265.14	P	567.30	0.94	
209	Bi	2	---	3161403.00	A	26640.00	0.84	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2808436.50	0.59	2847198.30	98.6	70 - 120	
45	Sc	1	86660.05	1.87	85579.54	101.3	70 - 120	
45	Sc	2	3689576.00	0.49	3826008.80	96.4	70 - 120	
72	Ge	1	50686.33	1.30	50553.60	100.3	70 - 120	
115	In	2	4637526.00	1.04	4785742.00	96.9	70 - 120	
209	Bi	2	3161402.80	0.84	3235410.00	97.7	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 50/1000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Mar 24 2014 02:18 pm
Last Cal. Update: Mar 24 2014 02:15 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	2794499.00	A	18170.00	0.65	
7	Li	2	45	207708.09	P	2802.00	1.35	
9	Be	2	45	78388.42	P	619.10	0.79	
11	B	2	45	52871.06	P	111.60	0.21	
23	Na	1	45	127018.50	P	1635.00	1.29	
24	Mg	1	45	55645.47	P	910.80	1.64	
27	Al	1	45	14948.63	P	173.20	1.16	
39	K	1	45	29793.20	P	90.20	0.30	
44	Ca	2	45	150674.00	P	1087.00	0.72	
45	Sc	1	---	83985.47	P	765.90	0.91	
45	Sc	2	---	3759517.00	A	12690.00	0.34	
47	Ti	1	45	600.91	P	18.10	3.01	
51	V	1	45	25851.21	P	531.60	2.06	
51	V	2	---		P			
52	Cr	1	45	32714.06	P	951.80	2.91	
55	Mn	1	45	12631.51	P	232.90	1.84	
56	Fe	1	72	489748.91	P	12220.00	2.50	
59	Co	1	72	59888.97	P	954.10	1.59	
60	Ni	1	72	17729.39	P	417.90	2.36	
60	Ni	2	---		P			
63	Cu	1	72	48847.19	P	859.30	1.76	
63	Cu	2	---		P			
66	Zn	1	72	4508.01	P	111.30	2.47	
66	Zn	2	---		P			
72	Ge	1	---	49927.65	P	798.70	1.60	
72	Ge	2	---		P			
75	As	1	72	2468.66	P	52.45	2.12	
78	Se	1	72	115.00	P	0.51	0.44	
88	Sr	2	115	358307.19	P	1528.00	0.43	
95	Mo	2	115	63959.09	P	640.90	1.00	
107	Ag	2	115	154085.50	P	1455.00	0.94	
111	Cd	2	115	31643.19	P	293.90	0.93	
115	In	2	---	4694134.00	A	27530.00	0.59	
118	Sn	2	115	93706.93	P	1699.00	1.81	
121	Sb	2	115	118795.30	P	724.80	0.61	
137	Ba	2	115	47722.02	P	789.90	1.66	
205	Tl	2	209	230564.50	P	2604.00	1.13	
208	Pb	2	209	313368.41	P	2384.00	0.76	
209	Bi	2	---	3170096.00	A	19080.00	0.60	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2794499.00	0.65	2847198.30	98.1	70 - 120	
45	Sc	1	83985.48	0.91	85579.54	98.1	70 - 120	
45	Sc	2	3759516.80	0.34	3826008.80	98.3	70 - 120	
72	Ge	1	49927.65	1.60	50553.60	98.8	70 - 120	
115	In	2	4694133.50	0.59	4785742.00	98.1	70 - 120	
209	Bi	2	3170095.50	0.60	3235410.00	98.0	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 100/2000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Mar 24 2014 02:24 pm
Last Cal. Update: Mar 24 2014 02:22 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	2805181.00	A	21800.00	0.78	
7	Li	2	45	207088.50	P	329.40	0.16	Fail
9	Be	2	45	155021.59	P	2239.00	1.44	
11	B	2	45	103439.50	P	1218.00	1.18	
23	Na	1	45	250331.59	P	4507.00	1.80	
24	Mg	1	45	111702.10	P	3140.00	2.81	
27	Al	1	45	29841.44	P	1135.00	3.80	
39	K	1	45	58599.06	P	2318.00	3.96	
44	Ca	2	45	298618.69	P	2483.00	0.83	
45	Sc	1	---	85820.83	P	1767.00	2.06	
45	Sc	2	---	3797150.00	A	53300.00	1.40	
47	Ti	1	45	1188.52	P	81.56	6.86	
51	V	1	45	51932.25	P	2017.00	3.88	
51	V	2	---		P			
52	Cr	1	45	65914.86	P	2136.00	3.24	
55	Mn	1	45	25344.89	P	745.90	2.94	
56	Fe	1	72	1010326.00	A	54840.00	5.43	
59	Co	1	72	120082.60	P	3049.00	2.54	
60	Ni	1	72	35085.65	P	834.10	2.38	
60	Ni	2	---		P			
63	Cu	1	72	97480.99	P	2863.00	2.94	
63	Cu	2	---		P			
66	Zn	1	72	8955.84	P	224.20	2.50	
66	Zn	2	---		P			
72	Ge	1	---	50433.47	P	1018.00	2.02	
72	Ge	2	---		P			
75	As	1	72	5009.51	P	129.10	2.58	
78	Se	1	72	233.34	P	3.10	1.33	
88	Sr	2	115	718124.69	P	5974.00	0.83	
95	Mo	2	115	128128.80	P	1687.00	1.32	
107	Ag	2	115	307799.19	P	3483.00	1.13	
111	Cd	2	115	62860.28	P	761.90	1.21	
115	In	2	---	4734076.00	A	81520.00	1.72	
118	Sn	2	115	186072.50	P	1345.00	0.72	
121	Sb	2	115	237093.20	P	2722.00	1.15	
137	Ba	2	115	95009.39	P	812.30	0.85	
205	Tl	2	209	462235.00	P	5534.00	1.20	
208	Pb	2	209	627095.81	P	8220.00	1.31	
209	Bi	2	---	3182530.00	A	56300.00	1.77	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2805181.30	0.78	2847198.30	98.5	70 - 120	
45	Sc	1	85820.83	2.06	85579.54	100.3	70 - 120	
45	Sc	2	3797149.80	1.40	3826008.80	99.2	70 - 120	
72	Ge	1	50433.47	2.02	50553.60	99.8	70 - 120	
115	In	2	4734076.00	1.72	4785742.00	98.9	70 - 120	
209	Bi	2	3182530.50	1.77	3235410.00	98.4	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 250/5000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Mar 24 2014 02:30 pm
Last Cal. Update: Mar 24 2014 02:28 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	2763125.00	A	18100.00	0.66	
7	Li	2	45	204296.70	P	2092.00	1.02	Fail
9	Be	2	45	385013.00	P	6264.00	1.63	
11	B	2	45	253706.80	P	2878.00	1.13	
23	Na	1	45	624396.88	P	4549.00	0.73	
24	Mg	1	45	282902.59	P	4180.00	1.48	
27	Al	1	45	76618.32	P	1066.00	1.39	
39	K	1	45	144466.09	P	2701.00	1.87	
44	Ca	2	45	732448.88	P	6210.00	0.85	
45	Sc	1	---	86903.89	P	1446.00	1.66	
45	Sc	2	---	3780485.00	A	20020.00	0.53	
47	Ti	1	45	3080.87	P	56.98	1.85	
51	V	1	45	130682.20	P	2358.00	1.80	
51	V	2	---		A			
52	Cr	1	45	164965.50	P	2330.00	1.41	
55	Mn	1	45	64381.05	P	1104.00	1.71	
56	Fe	1	72	2507583.00	A	36840.00	1.47	
59	Co	1	72	299688.69	P	3450.00	1.15	
60	Ni	1	72	87376.76	P	1155.00	1.32	
60	Ni	2	---		P			
63	Cu	1	72	243321.91	P	2810.00	1.15	
63	Cu	2	---		P			
66	Zn	1	72	22354.32	P	310.70	1.39	
66	Zn	2	---		P			
72	Ge	1	---	50884.47	P	559.90	1.10	
72	Ge	2	---		P			
75	As	1	72	12641.57	P	220.70	1.75	
78	Se	1	72	582.46	P	10.74	1.84	
88	Sr	2	115	1826795.00	A	37320.00	2.04	
95	Mo	2	115	318281.81	P	4916.00	1.54	
107	Ag	2	115	754823.88	P	6224.00	0.82	
111	Cd	2	115	153704.20	P	771.60	0.50	
115	In	2	---	4685097.00	A	37960.00	0.81	
118	Sn	2	115	459054.81	P	4345.00	0.95	
121	Sb	2	115	586727.19	P	6599.00	1.12	
137	Ba	2	115	236252.70	P	2524.00	1.07	
205	Tl	2	209	1195811.00	A	15480.00	1.29	
208	Pb	2	209	1543789.00	P	20910.00	1.35	
209	Bi	2	---	3137925.00	A	14630.00	0.47	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2763124.50	0.66	2847198.30	97.0	70 - 120	
45	Sc	1	86903.89	1.66	85579.54	101.5	70 - 120	
45	Sc	2	3780485.30	0.53	3826008.80	98.8	70 - 120	
72	Ge	1	50884.47	1.10	50553.60	100.7	70 - 120	
115	In	2	4685097.00	0.81	4785742.00	97.9	70 - 120	
209	Bi	2	3137925.30	0.47	3235410.00	97.0	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 500/10000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Mar 24 2014 02:36 pm
Last Cal. Update: Mar 24 2014 02:34 pm

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)	Flag
6 Li	2 ---	2776183.00	A	9839.00	0.35	
7 Li	2 45	206599.09	P	23.33	0.01	
9 Be	2 45	739112.63	A	8284.00	1.12	
11 B	2 45	513389.00	P	7929.00	1.54	
23 Na	1 45	1262684.00	A	29040.00	2.30	
24 Mg	1 45	561392.38	P	12810.00	2.28	
27 Al	1 45	152744.00	P	4218.00	2.76	
39 K	1 45	286698.69	P	6911.00	2.41	
44 Ca	2 45	1514609.00	A	10550.00	0.70	
45 Sc	1 ---	87638.79	P	1182.00	1.35	
45 Sc	2 ---	3746118.00	A	12230.00	0.33	
47 Ti	1 45	6159.83	P	119.60	1.94	
51 V	1 45	260606.91	P	5627.00	2.16	
51 V	2 ---		A			
52 Cr	1 45	328949.69	P	8510.00	2.59	
55 Mn	1 45	129044.60	P	3776.00	2.93	
56 Fe	1 72	4880750.00	A	123000.00	2.52	
59 Co	1 72	595332.50	P	12400.00	2.08	
60 Ni	1 72	173676.59	P	2656.00	1.53	
60 Ni	2 ---		P			
63 Cu	1 72	477108.41	P	9914.00	2.08	
63 Cu	2 ---		A			
66 Zn	1 72	43858.33	P	999.10	2.28	
66 Zn	2 ---		P			
72 Ge	1 ---	51170.26	P	706.70	1.38	
72 Ge	2 ---		P			
75 As	1 72	25047.31	P	626.80	2.50	
78 Se	1 72	1149.06	P	40.26	3.50	
88 Sr	2 115	3593938.00	A	10480.00	0.29	
95 Mo	2 115	637925.63	P	554.90	0.09	
107 Ag	2 115	1540691.00	A	13450.00	0.87	
111 Cd	2 115	303112.81	P	1984.00	0.65	
115 In	2 ---	4611348.00	A	27080.00	0.59	
118 Sn	2 115	918137.81	P	4119.00	0.45	
121 Sb	2 115	1205070.00	A	14700.00	1.22	
137 Ba	2 115	470371.31	P	4330.00	0.92	
205 Tl	2 209	2364892.00	A	13740.00	0.58	
208 Pb	2 209	3160232.00	A	19700.00	0.62	
209 Bi	2 ---	3122857.00	A	31180.00	1.00	

ISTD Elements

Element		CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2	2776182.80	0.35	2847198.30	97.5	70 - 120	
45 Sc	1	87638.79	1.35	85579.54	102.4	70 - 120	
45 Sc	2	3746118.00	0.33	3826008.80	97.9	70 - 120	
72 Ge	1	51170.27	1.38	50553.60	101.2	70 - 120	
115 In	2	4611348.00	0.59	4785742.00	96.4	70 - 120	
209 Bi	2	3122857.00	1.00	3235410.00	96.5	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 2000/25000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Mar 24 2014 02:42 pm
Last Cal. Update: Mar 24 2014 02:39 pm

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)	Flag
6 Li	2 ---	2634844.00	A	42240.00	1.60	
7 Li	2 45	193974.41	P	1912.00	0.99	Fail
9 Be	2 45	2697616.00	A	49730.00	1.84	
11 B	2 45	1882915.00	A	31320.00	1.66	
23 Na	1 45	3039970.00	A	57600.00	1.89	
24 Mg	1 45	1424720.00	A	36570.00	2.57	
27 Al	1 45	276.01	P	16.38	5.93	
39 K	1 45	701249.31	P	9207.00	1.31	
44 Ca	2 45	3687209.00	A	42430.00	1.15	
45 Sc	1 ---	83701.53	P	808.70	0.97	
45 Sc	2 ---	3652321.00	A	59950.00	1.64	
47 Ti	1 45	23074.11	P	678.50	2.94	
51 V	1 45	1033019.00	A	26140.00	2.53	
51 V	2 ---		A			
52 Cr	1 45	1302155.00	A	19860.00	1.53	
55 Mn	1 45	487955.69	P	9151.00	1.88	
56 Fe	1 72	16307.42	P	437.60	2.68	
59 Co	1 72	2318020.00	A	30980.00	1.34	
60 Ni	1 72	656477.69	P	8476.00	1.29	
60 Ni	2 ---		A			
63 Cu	1 72	1853057.00	A	23310.00	1.26	
63 Cu	2 ---		A			
66 Zn	1 72	163991.30	P	3119.00	1.90	
66 Zn	2 ---		A			
72 Ge	1 ---	48868.76	P	351.10	0.72	
72 Ge	2 ---		P			
75 As	1 72	95710.28	P	1614.00	1.69	
78 Se	1 72	4323.69	P	92.98	2.15	
88 Sr	2 115	13558070.00	A	230500.00	1.70	
95 Mo	2 115	2546637.00	A	20560.00	0.81	
107 Ag	2 115	1247.91	P	158.30	12.69	
111 Cd	2 115	1211467.00	A	15320.00	1.26	
115 In	2 ---	4504891.00	A	66590.00	1.48	
118 Sn	2 115	3644464.00	A	64850.00	1.78	
121 Sb	2 115	1159.00	P	208.00	17.95	
137 Ba	2 115	1872746.00	A	18720.00	1.00	
205 Tl	2 209	8792757.00	A	173700.00	1.98	
208 Pb	2 209	11935050.00	A	186200.00	1.56	
209 Bi	2 ---	3006158.00	A	40560.00	1.35	

ISTD Elements

Element		CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2	2634843.80	1.60	2847198.30	92.5	70 - 120	
45 Sc	1	83701.52	0.97	85579.54	97.8	70 - 120	
45 Sc	2	3652321.00	1.64	3826008.80	95.5	70 - 120	
72 Ge	1	48868.75	0.72	50553.60	96.7	70 - 120	
115 In	2	4504891.00	1.48	4785742.00	94.1	70 - 120	
209 Bi	2	3006157.80	1.35	3235410.00	92.9	70 - 120	

ICSA QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\041ICSA.D\041ICSA.D#

Date Acquired:	Mar 24 2014 03:00 pm	Sample Name:	**ICSA-140324**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	5526.000	ppb	0.72	8.00	5.00	FailSoil
9	Be	2	45	0.100	ppb	20.39	0.32	0.80	
11	B	2	45	4.697	ppb	6.08	30.00	30.00	
23	Na	1	45	91460.000	ppb	2.66	#######	#######	
24	Mg	1	45	91710.000	ppb	2.62	#######	#######	
27	Al	1	45	102600.000	ppb	3.50	#######	#######	
39	K	1	45	94550.000	ppb	1.75	#######	#######	
44	Ca	2	45	92760.000	ppb	0.50	#######	#######	
47	Ti	1	45	2034.000	ppb	4.58	10.00	10.00	
51	V	1	45	0.128	ppb	5.73	10.00	10.00	
52	Cr	1	45	0.485	ppb	1.93	8.00	5.00	
55	Mn	1	45	2.721	ppb	1.15	8.00	10.00	
56	Fe	1	72	94030.000	ppb	3.37	#######	#######	
59	Co	1	72	1.863	ppb	4.56	8.00	10.00	
60	Ni	1	72	1.738	ppb	7.43	8.00	10.00	
63	Cu	1	72	1.017	ppb	7.13	8.00	10.00	
66	Zn	1	72	1.778	ppb	5.80	10.00	5.00	
75	As	1	72	0.433	ppb	6.62	4.00	5.00	
78	Se	1	72	0.549	ppb	14.61	2.00	5.00	
88	Sr	2	115	0.500	ppb	1.69	10.00	10.00	
95	Mo	2	115	2062.000	ppb	0.72	8.00	5.00	
107	Ag	2	115	0.365	ppb	1.13	0.80	2.00	
111	Cd	2	115	0.686	ppb	43.43	1.20	1.00	
118	Sn	2	115	0.503	ppb	3.34	10.00	10.00	
121	Sb	2	115	1.082	ppb	7.10	4.00	2.50	
137	Ba	2	115	7.388	ppb	0.39	8.00	10.00	
205	Tl	2	209	0.468	ppb	1.87	4.00	1.50	
208	Pb	2	209	0.214	ppb	5.05	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2378620.30	1.48	2847198.30	83.5	70 - 120	
45	Sc	1	84420.56	1.82	85579.54	98.6	70 - 120	
45	Sc	2	3543563.80	0.88	3826008.80	92.6	70 - 120	
72	Ge	1	48780.42	1.79	50553.60	96.5	70 - 120	
115	In	2	4323548.00	0.24	4785742.00	90.3	70 - 120	
209	Bi	2	2819718.30	1.43	3235410.00	87.2	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\042ICSB.D\042ICSB.D#

Date Acquired:	Mar 24 2014 03:06 pm	Sample Name:	**ICSAB-140324**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	6290.00	ppb	1.66	---	80 -		120	
9	Be	2	45	0.05	ppb	29.26	---	80 -		120	
11	B	2	45	3.95	ppb	3.78	---	80 -		120	
23	Na	1	45	95060.00	ppb	0.29	100000.00	80 -		120	
24	Mg	1	45	95020.00	ppb	1.63	100000.00	80 -		120	
27	Al	1	45	105300.00	ppb	1.77	100000.00	80 -		120	
39	K	1	45	97320.00	ppb	1.88	100000.00	80 -		120	
44	Ca	2	45	94690.00	ppb	1.51	100000.00	80 -		120	
47	Ti	1	45	2093.00	ppb	1.93	---	80 -		120	
51	V	1	45	40.55	ppb	1.79	40.00	80 -		120	
52	Cr	1	45	20.25	ppb	2.30	20.00	80 -		120	
55	Mn	1	45	23.31	ppb	3.29	20.00	80 -		120	
56	Fe	1	72	97970.00	ppb	2.64	100000.00	80 -		120	
59	Co	1	72	40.93	ppb	0.77	40.00	80 -		120	
60	Ni	1	72	40.97	ppb	1.38	40.00	80 -		120	
63	Cu	1	72	19.54	ppb	2.38	20.00	80 -		120	
66	Zn	1	72	22.55	ppb	4.22	20.00	80 -		120	
75	As	1	72	21.28	ppb	1.71	20.00	80 -		120	
78	Se	1	72	19.98	ppb	4.78	20.00	80 -		120	
88	Sr	2	115	0.51	ppb	6.90	---	80 -		120	
95	Mo	2	115	2075.00	ppb	1.16	---	80 -		120	
107	Ag	2	115	18.88	ppb	1.75	20.00	80 -		120	
111	Cd	2	115	10.15	ppb	3.31	10.00	80 -		120	
118	Sn	2	115	0.32	ppb	4.56	---	80 -		120	
121	Sb	2	115	1.02	ppb	2.53	---	80 -		120	
137	Ba	2	115	0.34	ppb	3.16	---	80 -		120	
205	Tl	2	209	0.23	ppb	9.46	---	80 -		120	
208	Pb	2	209	0.22	ppb	4.12	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	2407654.30	1.00	2847198.30	84.6	70 -		120	
45	Sc	1	78659.27	1.90	85579.54	91.9	70 -		120	
45	Sc	2	3577040.80	1.00	3826008.80	93.5	70 -		120	
72	Ge	1	46102.79	1.08	50553.60	91.2	70 -		120	
115	In	2	4387784.50	0.37	4785742.00	91.7	70 -		120	
209	Bi	2	2824255.50	1.55	3235410.00	87.3	70 -		120	

CCV QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\045ICV.D\045ICV.D#

Date Acquired:	Mar 24 2014 03:24 pm	Sample Name:	**ICV1-140324**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	-105.90	ppb	1.81	100.00	90 -	110	-105.9	Fail
9	Be	2	45	102.70	ppb	0.88	100.00	90 -	110	102.7	
11	B	2	45	100.10	ppb	1.07	100.00	90 -	110	100.1	
23	Na	1	45	2432.00	ppb	1.41	2500.00	90 -	110	97.3	
24	Mg	1	45	2405.00	ppb	1.89	2500.00	90 -	110	96.2	
27	Al	1	45	2517.00	ppb	2.13	2500.00	90 -	110	100.7	
39	K	1	45	2414.00	ppb	1.68	2500.00	90 -	110	96.6	
44	Ca	2	45	2372.00	ppb	0.91	2500.00	90 -	110	94.9	
47	Ti	1	45	100.10	ppb	0.34	100.00	90 -	110	100.1	
51	V	1	45	95.26	ppb	0.10	100.00	90 -	110	95.3	
52	Cr	1	45	98.13	ppb	1.14	100.00	90 -	110	98.1	
55	Mn	1	45	100.90	ppb	2.21	100.00	90 -	110	100.9	
56	Fe	1	72	2597.00	ppb	2.26	2500.00	90 -	110	103.9	
59	Co	1	72	101.50	ppb	1.47	100.00	90 -	110	101.5	
60	Ni	1	72	104.10	ppb	0.78	100.00	90 -	110	104.1	
63	Cu	1	72	100.30	ppb	0.74	100.00	90 -	110	100.3	
66	Zn	1	72	103.20	ppb	1.08	100.00	90 -	110	103.2	
75	As	1	72	99.47	ppb	0.92	100.00	90 -	110	99.5	
78	Se	1	72	100.50	ppb	4.54	100.00	90 -	110	100.5	
88	Sr	2	115	99.21	ppb	0.71	100.00	90 -	110	99.2	
95	Mo	2	115	94.75	ppb	1.04	100.00	90 -	110	94.8	
107	Ag	2	115	97.17	ppb	1.21	100.00	90 -	110	97.2	
111	Cd	2	115	97.75	ppb	1.49	100.00	90 -	110	97.8	
118	Sn	2	115	101.30	ppb	0.99	100.00	90 -	110	101.3	
121	Sb	2	115	94.58	ppb	0.73	100.00	90 -	110	94.6	
137	Ba	2	115	96.48	ppb	1.65	100.00	90 -	110	96.5	
205	Tl	2	209	98.95	ppb	0.52	100.00	90 -	110	99.0	
208	Pb	2	209	99.96	ppb	1.10	100.00	90 -	110	100.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	2920198.50	1.78	2847198.30	102.6	70 -	120		
45	Sc	1	89976.85	1.18	85579.54	105.1	70 -	120		
45	Sc	2	3855507.80	0.83	3826008.80	100.8	70 -	120		
72	Ge	1	52506.57	0.86	50553.60	103.9	70 -	120		
115	In	2	4736059.00	0.83	4785742.00	99.0	70 -	120		
209	Bi	2	3220346.50	1.55	3235410.00	99.5	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\047LCVL.D\047LCVL.D#

Date Acquired:	Mar 24 2014 03:36 pm	Sample Name:	**ILCVL-140324**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	-284.80	ppb	0.64	5.00	70 -	130	######	Fail
9	Be	2	45	0.94	ppb	4.27	1.00	70 -	130	93.6	
11	B	2	45	19.27	ppb	0.03	20.00	70 -	130	96.4	
23	Na	1	45	94.69	ppb	1.20	100.00	70 -	130	94.7	
24	Mg	1	45	92.91	ppb	1.46	100.00	70 -	130	92.9	
27	Al	1	45	93.60	ppb	2.77	100.00	70 -	130	93.6	
39	K	1	45	90.56	ppb	1.36	100.00	70 -	130	90.6	
44	Ca	2	45	89.28	ppb	3.27	100.00	70 -	130	89.3	
47	Ti	1	45	4.54	ppb	13.53	5.00	70 -	130	90.8	
51	V	1	45	0.90	ppb	4.52	1.00	70 -	130	90.1	
52	Cr	1	45	4.70	ppb	1.96	5.00	70 -	130	94.0	
55	Mn	1	45	4.89	ppb	0.84	5.00	70 -	130	97.8	
56	Fe	1	72	93.66	ppb	2.18	100.00	70 -	130	93.7	
59	Co	1	72	4.73	ppb	1.82	5.00	70 -	130	94.6	
60	Ni	1	72	4.84	ppb	3.27	5.00	70 -	130	96.7	
63	Cu	1	72	4.71	ppb	3.14	5.00	70 -	130	94.2	
66	Zn	1	72	4.73	ppb	4.52	5.00	70 -	130	94.6	
75	As	1	72	4.79	ppb	0.28	5.00	70 -	130	95.8	
78	Se	1	72	5.04	ppb	4.95	5.00	70 -	130	100.9	
88	Sr	2	115	4.66	ppb	1.61	5.00	70 -	130	93.2	
95	Mo	2	115	4.88	ppb	1.42	5.00	70 -	130	97.5	
107	Ag	2	115	1.74	ppb	1.77	2.00	70 -	130	86.9	
111	Cd	2	115	0.88	ppb	7.92	1.00	70 -	130	88.2	
118	Sn	2	115	4.78	ppb	2.45	5.00	70 -	130	95.6	
121	Sb	2	115	1.67	ppb	3.99	2.00	70 -	130	83.7	
137	Ba	2	115	4.61	ppb	2.52	5.00	70 -	130	92.2	
205	Tl	2	209	1.01	ppb	2.01	1.00	70 -	130	101.1	
208	Pb	2	209	0.96	ppb	2.36	1.00	70 -	130	96.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	2875150.30	0.61	2847198.30	101.0	70 -	120		
45	Sc	1	87752.54	1.73	85579.54	102.5	70 -	120		
45	Sc	2	3816063.80	0.72	3826008.80	99.7	70 -	120		
72	Ge	1	52168.99	2.24	50553.60	103.2	70 -	120		
115	In	2	4779582.50	0.07	4785742.00	99.9	70 -	120		
209	Bi	2	3270357.30	0.19	3235410.00	101.1	70 -	120		

ICB QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\048_ICB.D\048_ICB.D#

Date Acquired:	Mar 24 2014 03:42 pm	Sample Name:	**ICB1-140324**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm	Instrument:	ICPMS3

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	202.90	ppb	0.32	5.00	Fail
9	Be	2	45	0.01	ppb	11.60	0.80	
11	B	2	45	0.80	ppb	3.85	10.00	
23	Na	1	45	-0.44	ppb	0.63	50.00	
24	Mg	1	45	-1.13	ppb	5.04	50.00	
27	Al	1	45	0.05	ppb	12.05	30.00	
39	K	1	45	1.25	ppb	2.19	50.00	
44	Ca	2	45	-3.03	ppb	2.57	50.00	
47	Ti	1	45	-0.15	ppb	0.00	10.00	
51	V	1	45	0.03	ppb	12.84	10.00	
52	Cr	1	45	-0.02	ppb	12.08	3.00	
55	Mn	1	45	-0.03	ppb	8.70	10.00	
56	Fe	1	72	-0.16	ppb	6.74	50.00	
59	Co	1	72	0.00	ppb	21.12	3.00	
60	Ni	1	72	0.01	ppb	12.21	3.00	
63	Cu	1	72	-0.04	ppb	9.59	3.00	
66	Zn	1	72	-0.26	ppb	16.55	10.00	
75	As	1	72	0.07	ppb	11.72	10.00	
78	Se	1	72	-0.23	ppb	4.22	10.00	
88	Sr	2	115	-0.01	ppb	6.83	10.00	
95	Mo	2	115	0.31	ppb	11.57	10.00	
107	Ag	2	115	0.00	ppb	22.92	2.00	
111	Cd	2	115	-0.02	ppb	24.73	1.00	
118	Sn	2	115	0.06	ppb	3.02	10.00	
121	Sb	2	115	0.03	ppb	11.27	1.00	
137	Ba	2	115	0.01	ppb	21.17	3.00	
205	Tl	2	209	0.07	ppb	13.76	1.00	
208	Pb	2	209	0.00	ppb	10.69	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2842851.00	0.50	2847198.30	99.8	70 - 120	
45	Sc	1	90283.25	1.94	85579.54	105.5	70 - 120	
45	Sc	2	3821406.30	0.70	3826008.80	99.9	70 - 120	
72	Ge	1	52790.27	1.96	50553.60	104.4	70 - 120	
115	In	2	4801174.00	1.11	4785742.00	100.3	70 - 120	
209	Bi	2	3269277.50	0.88	3235410.00	101.0	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\152CCV1.D\152CCV1.D#

Date Acquired:	Mar 25 2014 02:09 am	Sample Name:	**CCV5-140324**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	7491.00	ppb	1.15	200.00	90 -	110	3745.5	Fail
9	Be	2	45	183.90	ppb	1.60	200.00	90 -	110	92.0	
11	B	2	45	206.40	ppb	0.82	200.00	90 -	110	103.2	
23	Na	1	45	5646.00	ppb	0.93	5000.00	90 -	110	112.9	Fail
24	Mg	1	45	5099.00	ppb	2.30	5000.00	90 -	110	102.0	
27	Al	1	45	5283.00	ppb	2.52	5000.00	90 -	110	105.7	
39	K	1	45	5268.00	ppb	0.87	5000.00	90 -	110	105.4	
44	Ca	2	45	5196.00	ppb	1.26	5000.00	90 -	110	103.9	
47	Ti	1	45	210.00	ppb	4.17	200.00	90 -	110	105.0	
51	V	1	45	199.00	ppb	2.19	200.00	90 -	110	99.5	
52	Cr	1	45	201.80	ppb	2.90	200.00	90 -	110	100.9	
55	Mn	1	45	209.70	ppb	1.72	200.00	90 -	110	104.9	
56	Fe	1	72	5374.00	ppb	2.18	5000.00	90 -	110	107.5	
59	Co	1	72	199.30	ppb	1.88	200.00	90 -	110	99.7	
60	Ni	1	72	206.40	ppb	1.32	200.00	90 -	110	103.2	
63	Cu	1	72	201.80	ppb	1.94	200.00	90 -	110	100.9	
66	Zn	1	72	210.10	ppb	1.59	200.00	90 -	110	105.1	
75	As	1	72	207.30	ppb	2.06	200.00	90 -	110	103.7	
78	Se	1	72	205.40	ppb	1.40	200.00	90 -	110	102.7	
88	Sr	2	115	217.90	ppb	1.09	200.00	90 -	110	109.0	
95	Mo	2	115	204.30	ppb	0.64	200.00	90 -	110	102.2	
107	Ag	2	115	203.90	ppb	1.22	200.00	90 -	110	102.0	
111	Cd	2	115	197.30	ppb	1.52	200.00	90 -	110	98.7	
118	Sn	2	115	198.30	ppb	0.81	200.00	90 -	110	99.2	
121	Sb	2	115	205.80	ppb	1.06	200.00	90 -	110	102.9	
137	Ba	2	115	198.60	ppb	0.88	200.00	90 -	110	99.3	
205	Tl	2	209	200.70	ppb	1.09	200.00	90 -	110	100.4	
208	Pb	2	209	200.10	ppb	1.18	200.00	90 -	110	100.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	1988548.10	2.02	2847198.30	69.8	70 -	120		ISFail
45	Sc	1	66224.20	0.36	85579.54	77.4	70 -	120		
45	Sc	2	3071559.30	0.99	3826008.80	80.3	70 -	120		
72	Ge	1	39691.33	1.00	50553.60	78.5	70 -	120		
115	In	2	3856573.80	0.75	4785742.00	80.6	70 -	120		
209	Bi	2	2654006.00	1.01	3235410.00	82.0	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\156LCVL.D\156LCVL.D#

Date Acquired:	Mar 25 2014 02:33 am	Sample Name:	**LCVL5-140324**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	5736.00	ppb	1.10	5.00	70 -	130	######	Fail
9	Be	2	45	0.90	ppb	7.56	1.00	70 -	130	90.2	
11	B	2	45	25.47	ppb	3.35	20.00	70 -	130	127.4	
23	Na	1	45	371.50	ppb	2.00	100.00	70 -	130	371.5	Fail
24	Mg	1	45	92.77	ppb	3.40	100.00	70 -	130	92.8	
27	Al	1	45	97.71	ppb	1.66	100.00	70 -	130	97.7	
39	K	1	45	113.30	ppb	4.02	100.00	70 -	130	113.3	
44	Ca	2	45	101.90	ppb	1.79	100.00	70 -	130	101.9	
47	Ti	1	45	4.77	ppb	14.95	5.00	70 -	130	95.5	
51	V	1	45	0.98	ppb	4.58	1.00	70 -	130	98.2	
52	Cr	1	45	4.94	ppb	3.28	5.00	70 -	130	98.8	
55	Mn	1	45	5.24	ppb	3.28	5.00	70 -	130	104.9	
56	Fe	1	72	93.81	ppb	1.43	100.00	70 -	130	93.8	
59	Co	1	72	4.74	ppb	1.64	5.00	70 -	130	94.8	
60	Ni	1	72	4.97	ppb	2.24	5.00	70 -	130	99.4	
63	Cu	1	72	4.84	ppb	1.43	5.00	70 -	130	96.9	
66	Zn	1	72	4.63	ppb	1.36	5.00	70 -	130	92.6	
75	As	1	72	4.91	ppb	2.47	5.00	70 -	130	98.2	
78	Se	1	72	5.40	ppb	8.95	5.00	70 -	130	108.0	
88	Sr	2	115	4.90	ppb	0.92	5.00	70 -	130	98.0	
95	Mo	2	115	4.49	ppb	3.14	5.00	70 -	130	89.8	
107	Ag	2	115	1.77	ppb	1.99	2.00	70 -	130	88.4	
111	Cd	2	115	0.90	ppb	4.52	1.00	70 -	130	90.4	
118	Sn	2	115	4.67	ppb	2.88	5.00	70 -	130	93.5	
121	Sb	2	115	1.84	ppb	4.37	2.00	70 -	130	92.0	
137	Ba	2	115	4.67	ppb	2.10	5.00	70 -	130	93.4	
205	Tl	2	209	1.04	ppb	3.03	1.00	70 -	130	103.9	
208	Pb	2	209	0.92	ppb	1.63	1.00	70 -	130	92.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	2127077.00	0.93	2847198.30	74.7	70 -	120		
45	Sc	1	67213.31	1.91	85579.54	78.5	70 -	120		
45	Sc	2	3141721.00	0.95	3826008.80	82.1	70 -	120		
72	Ge	1	40505.32	1.10	50553.60	80.1	70 -	120		
115	In	2	3917820.30	0.65	4785742.00	81.9	70 -	120		
209	Bi	2	2753734.00	0.82	3235410.00	85.1	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\158_CCB.D\158_CCB.D#

Date Acquired:	Mar 25 2014 02:46 am	Sample Name:	**CCB5-140324**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	5971.000	ppb	0.40	2.00	2.00	Failsoil
9	Be	2	45	-0.005	ppb	29.41	0.10	0.30	
11	B	2	45	5.600	ppb	2.11	10.00	10.00	
23	Na	1	45	225.200	ppb	1.58	50.00	#####	Failsoil
24	Mg	1	45	-0.524	ppb	24.55	50.00	#####	
27	Al	1	45	-0.256	ppb	13.36	50.00	10.00	
39	K	1	45	15.470	ppb	1.75	50.00	#####	
44	Ca	2	45	9.631	ppb	3.40	50.00	#####	
47	Ti	1	45	-0.105	ppb	173.20	4.00	3.00	
51	V	1	45	0.024	ppb	8.84	4.00	3.00	
52	Cr	1	45	-0.059	ppb	8.69	2.00	2.00	
55	Mn	1	45	0.038	ppb	23.42	2.00	3.00	
56	Fe	1	72	-0.922	ppb	2.33	50.00	50.00	
59	Co	1	72	0.005	ppb	16.23	2.00	3.00	
60	Ni	1	72	0.005	ppb	22.93	2.00	3.00	
63	Cu	1	72	0.071	ppb	3.30	2.00	2.00	
66	Zn	1	72	-0.241	ppb	12.94	4.00	2.00	
75	As	1	72	0.058	ppb	2.78	2.00	2.00	
78	Se	1	72	-0.120	ppb	12.38	0.60	2.00	
88	Sr	2	115	0.043	ppb	9.64	4.00	3.00	
95	Mo	2	115	-0.022	ppb	15.95	2.00	2.00	
107	Ag	2	115	0.004	ppb	31.22	0.40	1.00	
111	Cd	2	115	-0.013	ppb	42.58	0.40	0.30	
118	Sn	2	115	-0.067	ppb	6.70	4.00	3.00	
121	Sb	2	115	0.086	ppb	1.45	2.00	0.80	
137	Ba	2	115	0.002	ppb	38.88	2.00	3.00	
205	Tl	2	209	0.063	ppb	3.82	2.00	0.50	
208	Pb	2	209	-0.006	ppb	3.42	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2169804.00	1.50	2847198.30	76.2	70 - 120	
45	Sc	1	68440.62	2.63	85579.54	80.0	70 - 120	
45	Sc	2	3206030.00	0.49	3826008.80	83.8	70 - 120	
72	Ge	1	40906.01	1.88	50553.60	80.9	70 - 120	
115	In	2	3994112.00	0.38	4785742.00	83.5	70 - 120	
209	Bi	2	2802691.30	0.58	3235410.00	86.6	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\159__PB.D\159__PB.D#

Date Acquired:	Mar 25 2014 02:52 am	Sample Name:	**MB-62459**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLK6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	4904.000	ppb	1.22	2.0	5.00	Fail
9	Be	2	45	-0.008	ppb	12.37	0.3	0.80	
11	B	2	45	4.694	ppb	4.94	10.0	30.00	
23	Na	1	45	216.100	ppb	0.34	100.0	#####	Fail
24	Mg	1	45	0.428	ppb	21.44	100.0	#####	
27	Al	1	45	-0.880	ppb	6.64	10.0	30.00	
39	K	1	45	18.420	ppb	1.52	100.0	#####	
44	Ca	2	45	7.550	ppb	2.28	100.0	#####	
47	Ti	1	45	-0.105	ppb	173.20	3.0	10.00	
51	V	1	45	0.078	ppb	10.46	3.0	10.00	
52	Cr	1	45	-0.055	ppb	2.48	2.0	5.00	
55	Mn	1	45	0.125	ppb	13.92	3.0	10.00	
56	Fe	1	72	0.316	ppb	3.69	50.0	#####	
59	Co	1	72	-0.007	ppb	17.56	3.0	10.00	
60	Ni	1	72	-0.015	ppb	26.36	3.0	10.00	
63	Cu	1	72	0.065	ppb	10.22	2.0	10.00	
66	Zn	1	72	1.258	ppb	3.68	2.0	5.00	
75	As	1	72	0.001	ppb	15.67	2.0	5.00	
78	Se	1	72	-0.134	ppb	38.19	2.0	5.00	
88	Sr	2	115	0.005	ppb	6.90	3.0	10.00	
95	Mo	2	115	-0.042	ppb	18.32	2.0	5.00	
107	Ag	2	115	0.004	ppb	24.74	1.0	2.00	
111	Cd	2	115	-0.005	ppb	33.15	0.3	1.00	
118	Sn	2	115	0.553	ppb	3.50	3.0	10.00	
121	Sb	2	115	0.064	ppb	12.01	0.8	2.50	
137	Ba	2	115	-0.027	ppb	53.30	3.0	10.00	
205	Tl	2	209	0.045	ppb	10.70	0.5	1.50	
208	Pb	2	209	-0.018	ppb	12.83	0.3	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2175043.00	1.04	2847198.30	76.4	70 - 120	
45	Sc	1	66832.13	2.31	85579.54	78.1	70 - 120	
45	Sc	2	3150942.30	1.36	3826008.80	82.4	70 - 120	
72	Ge	1	40417.23	1.19	50553.60	79.9	70 - 120	
115	In	2	3960350.80	0.67	4785742.00	82.8	70 - 120	
209	Bi	2	2787024.30	0.95	3235410.00	86.1	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\160_LCS.D\160_LCS.D#

Date Acquired:	Mar 25 2014 02:58 am	Sample Name:	**LCS-62459**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	5318.00	ppb	0.53	200.00	80 -	120	2659.0	Fail
9	Be	2	45	189.00	ppb	0.62	200.00	80 -	120	94.5	
11	B	2	45	190.30	ppb	1.17	200.00	80 -	120	95.2	
23	Na	1	45	5086.00	ppb	1.42	5000.00	80 -	120	101.7	
24	Mg	1	45	4822.00	ppb	1.76	5000.00	80 -	120	96.4	
27	Al	1	45	5048.00	ppb	2.74	5000.00	80 -	120	101.0	
39	K	1	45	4941.00	ppb	2.16	5000.00	80 -	120	98.8	
44	Ca	2	45	4850.00	ppb	0.93	5000.00	80 -	120	97.0	
47	Ti	1	45	205.80	ppb	7.64	200.00	80 -	120	102.9	
51	V	1	45	196.60	ppb	2.37	200.00	80 -	120	98.3	
52	Cr	1	45	197.50	ppb	2.57	200.00	80 -	120	98.8	
55	Mn	1	45	206.80	ppb	3.25	200.00	80 -	120	103.4	
56	Fe	1	72	5177.00	ppb	2.47	5000.00	80 -	120	103.5	
59	Co	1	72	195.50	ppb	2.10	200.00	80 -	120	97.8	
60	Ni	1	72	201.10	ppb	1.63	200.00	80 -	120	100.6	
63	Cu	1	72	198.70	ppb	1.86	200.00	80 -	120	99.4	
66	Zn	1	72	208.50	ppb	1.55	200.00	80 -	120	104.3	
75	As	1	72	205.40	ppb	2.45	200.00	80 -	120	102.7	
78	Se	1	72	209.20	ppb	4.49	200.00	80 -	120	104.6	
88	Sr	2	115	210.80	ppb	1.37	200.00	80 -	120	105.4	
95	Mo	2	115	196.30	ppb	0.36	200.00	80 -	120	98.2	
107	Ag	2	115	194.80	ppb	0.82	200.00	80 -	120	97.4	
111	Cd	2	115	195.10	ppb	1.22	200.00	80 -	120	97.6	
118	Sn	2	115	194.70	ppb	0.91	200.00	80 -	120	97.4	
121	Sb	2	115	196.20	ppb	0.37	200.00	80 -	120	98.1	
137	Ba	2	115	195.40	ppb	0.49	200.00	80 -	120	97.7	
205	Tl	2	209	195.50	ppb	0.53	200.00	80 -	120	97.8	
208	Pb	2	209	195.70	ppb	0.64	200.00	80 -	120	97.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	2150421.00	0.91	2847198.30	75.5	70 -	120		
45	Sc	1	66318.31	1.46	85579.54	77.5	70 -	120		
45	Sc	2	3121953.80	0.45	3826008.80	81.6	70 -	120		
72	Ge	1	39964.66	0.91	50553.60	79.1	70 -	120		
115	In	2	3888607.00	0.48	4785742.00	81.3	70 -	120		
209	Bi	2	2714930.50	0.42	3235410.00	83.9	70 -	120		

LCS QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\161_LCS.D\161_LCS.D#

Date Acquired:	Mar 25 2014 03:04 am	Sample Name:	**LCSD-62459**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSD6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	5263.00	ppb	0.97	200.00	80 -	120	2631.5	Fail
9	Be	2	45	185.60	ppb	0.92	200.00	80 -	120	92.8	
11	B	2	45	189.40	ppb	0.34	200.00	80 -	120	94.7	
23	Na	1	45	5013.00	ppb	1.53	5000.00	80 -	120	100.3	
24	Mg	1	45	4781.00	ppb	2.32	5000.00	80 -	120	95.6	
27	Al	1	45	4963.00	ppb	2.67	5000.00	80 -	120	99.3	
39	K	1	45	4891.00	ppb	1.54	5000.00	80 -	120	97.8	
44	Ca	2	45	4769.00	ppb	0.17	5000.00	80 -	120	95.4	
47	Ti	1	45	208.10	ppb	7.48	200.00	80 -	120	104.1	
51	V	1	45	195.90	ppb	2.33	200.00	80 -	120	98.0	
52	Cr	1	45	195.70	ppb	2.61	200.00	80 -	120	97.9	
55	Mn	1	45	204.40	ppb	2.32	200.00	80 -	120	102.2	
56	Fe	1	72	5136.00	ppb	1.41	5000.00	80 -	120	102.7	
59	Co	1	72	194.40	ppb	1.52	200.00	80 -	120	97.2	
60	Ni	1	72	199.30	ppb	1.78	200.00	80 -	120	99.7	
63	Cu	1	72	197.90	ppb	1.87	200.00	80 -	120	99.0	
66	Zn	1	72	206.80	ppb	2.12	200.00	80 -	120	103.4	
75	As	1	72	203.90	ppb	2.33	200.00	80 -	120	102.0	
78	Se	1	72	205.90	ppb	4.22	200.00	80 -	120	103.0	
88	Sr	2	115	209.40	ppb	0.91	200.00	80 -	120	104.7	
95	Mo	2	115	195.70	ppb	0.35	200.00	80 -	120	97.9	
107	Ag	2	115	193.10	ppb	0.69	200.00	80 -	120	96.6	
111	Cd	2	115	194.50	ppb	0.96	200.00	80 -	120	97.3	
118	Sn	2	115	192.20	ppb	0.27	200.00	80 -	120	96.1	
121	Sb	2	115	194.00	ppb	0.48	200.00	80 -	120	97.0	
137	Ba	2	115	194.10	ppb	0.61	200.00	80 -	120	97.1	
205	Tl	2	209	194.40	ppb	0.50	200.00	80 -	120	97.2	
208	Pb	2	209	194.50	ppb	0.49	200.00	80 -	120	97.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	2146219.80	0.20	2847198.30	75.4	70 -	120	
45	Sc	1	67312.09	2.09	85579.54	78.7	70 -	120	
45	Sc	2	3129582.30	0.41	3826008.80	81.8	70 -	120	
72	Ge	1	40390.30	1.32	50553.60	79.9	70 -	120	
115	In	2	3885274.50	0.23	4785742.00	81.2	70 -	120	
209	Bi	2	2718506.80	0.20	3235410.00	84.0	70 -	120	

ICSA QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\162ICSA.D\162ICSA.D#

Date Acquired:	Mar 25 2014 03:10 am	Sample Name:	**ICSA-140324**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	9397.000	ppb	0.77	8.00	5.00	FailSoil
9	Be	2	45	0.103	ppb	8.49	0.32	0.80	
11	B	2	45	6.394	ppb	4.21	30.00	30.00	
23	Na	1	45	92540.000	ppb	2.68	#######	#######	
24	Mg	1	45	93910.000	ppb	2.58	#######	#######	
27	Al	1	45	102600.000	ppb	3.38	#######	#######	
39	K	1	45	98000.000	ppb	3.11	#######	#######	
44	Ca	2	45	93640.000	ppb	0.93	#######	#######	
47	Ti	1	45	2076.000	ppb	3.54	10.00	10.00	
51	V	1	45	0.313	ppb	8.90	10.00	10.00	
52	Cr	1	45	0.550	ppb	4.77	8.00	5.00	
55	Mn	1	45	3.209	ppb	0.68	8.00	10.00	
56	Fe	1	72	94770.000	ppb	3.33	#######	#######	
59	Co	1	72	1.992	ppb	0.04	8.00	10.00	
60	Ni	1	72	1.811	ppb	5.18	8.00	10.00	
63	Cu	1	72	1.229	ppb	7.98	8.00	10.00	
66	Zn	1	72	1.659	ppb	5.73	10.00	5.00	
75	As	1	72	0.548	ppb	8.84	4.00	5.00	
78	Se	1	72	0.432	ppb	15.00	2.00	5.00	
88	Sr	2	115	0.568	ppb	0.70	10.00	10.00	
95	Mo	2	115	2087.000	ppb	0.51	8.00	5.00	
107	Ag	2	115	0.435	ppb	8.24	0.80	2.00	
111	Cd	2	115	0.781	ppb	29.82	1.20	1.00	
118	Sn	2	115	0.258	ppb	1.98	10.00	10.00	
121	Sb	2	115	1.218	ppb	1.54	4.00	2.50	
137	Ba	2	115	7.569	ppb	2.66	8.00	10.00	
205	Tl	2	209	0.614	ppb	5.73	4.00	1.50	
208	Pb	2	209	0.223	ppb	1.98	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	1939237.30	0.25	2847198.30	68.1	70	-	120	ISFail
45	Sc	1	64163.40	1.93	85579.54	75.0	70	-	120	
45	Sc	2	3063067.30	0.95	3826008.80	80.1	70	-	120	
72	Ge	1	38293.60	1.15	50553.60	75.7	70	-	120	
115	In	2	3734675.30	0.47	4785742.00	78.0	70	-	120	
209	Bi	2	2498840.50	0.16	3235410.00	77.2	70	-	120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\163ICSB.D\163ICSB.D#

Date Acquired:	Mar 25 2014 03:16 am	Sample Name:	**ICSAB-140324**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	10130.00	ppb	1.45	---	80 -		120	
9	Be	2	45	0.01	ppb	24.15	---	80 -		120	
11	B	2	45	4.67	ppb	1.01	---	80 -		120	
23	Na	1	45	92910.00	ppb	2.69	100000.00	80 -		120	
24	Mg	1	45	93050.00	ppb	3.45	100000.00	80 -		120	
27	Al	1	45	102600.00	ppb	3.17	100000.00	80 -		120	
39	K	1	45	98060.00	ppb	2.70	100000.00	80 -		120	
44	Ca	2	45	94980.00	ppb	0.72	100000.00	80 -		120	
47	Ti	1	45	2074.00	ppb	3.49	---	80 -		120	
51	V	1	45	39.16	ppb	2.46	40.00	80 -		120	
52	Cr	1	45	19.91	ppb	4.14	20.00	80 -		120	
55	Mn	1	45	22.78	ppb	2.97	20.00	80 -		120	
56	Fe	1	72	95400.00	ppb	3.52	100000.00	80 -		120	
59	Co	1	72	39.50	ppb	2.38	40.00	80 -		120	
60	Ni	1	72	39.53	ppb	1.26	40.00	80 -		120	
63	Cu	1	72	18.80	ppb	2.38	20.00	80 -		120	
66	Zn	1	72	20.81	ppb	2.95	20.00	80 -		120	
75	As	1	72	21.17	ppb	4.35	20.00	80 -		120	
78	Se	1	72	19.83	ppb	1.98	20.00	80 -		120	
88	Sr	2	115	0.52	ppb	4.78	---	80 -		120	
95	Mo	2	115	2116.00	ppb	0.74	---	80 -		120	
107	Ag	2	115	18.84	ppb	0.72	20.00	80 -		120	
111	Cd	2	115	10.53	ppb	2.52	10.00	80 -		120	
118	Sn	2	115	0.09	ppb	20.28	---	80 -		120	
121	Sb	2	115	1.00	ppb	3.64	---	80 -		120	
137	Ba	2	115	0.29	ppb	4.24	---	80 -		120	
205	Tl	2	209	0.23	ppb	5.74	---	80 -		120	
208	Pb	2	209	0.17	ppb	11.41	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	1953116.00	0.75	2847198.30	68.6	70 -		120	ISFail
45	Sc	1	65240.90	1.49	85579.54	76.2	70 -		120	
45	Sc	2	3109264.80	0.54	3826008.80	81.3	70 -		120	
72	Ge	1	38825.26	1.06	50553.60	76.8	70 -		120	
115	In	2	3769010.30	0.79	4785742.00	78.8	70 -		120	
209	Bi	2	2538604.00	0.97	3235410.00	78.5	70 -		120	

DT QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\168DT1.D\168DT1.D#

Date Acquired:	Mar 25 2014 03:46 am	Sample Name:	**1403188-01A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD 6020A_W
Operator:	SW	Bench Diln:	5.00
Last Cal. Update:	Mar 24 2014 03:00 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	2925.00	ppb	0.08	#########	90 - 110	0.6	
9	Be	2	45	-0.02	ppb	36.64	-0.02	90 - 110	490.5	
11	B	2	45	3.18	ppb	1.80	9.40	90 - 110	169.3	
23	Na	1	45	137.40	ppb	0.88	165.60	90 - 110	414.9	
24	Mg	1	45	3.33	ppb	10.70	4.14	90 - 110	401.8	
27	Al	1	45	1.93	ppb	10.70	6.21	90 - 110	155.7	
39	K	1	45	16.35	ppb	1.83	15.11	90 - 110	541.0	
44	Ca	2	45	7.01	ppb	3.14	13.26	90 - 110	264.4	
47	Ti	1	45	-0.06	ppb	86.60	0.17	90 - 110	-164.6	
51	V	1	45	0.02	ppb	6.79	0.07	90 - 110	138.0	
52	Cr	1	45	-0.04	ppb	22.20	0.03	90 - 110	-575.8	
55	Mn	1	45	-0.04	ppb	21.07	0.35	90 - 110	-52.1	
56	Fe	1	72	0.28	ppb	6.37	29.62	90 - 110	4.7	
59	Co	1	72	0.00	ppb	23.57	0.00	90 - 110	696.9	
60	Ni	1	72	-0.03	ppb	32.87	0.08	90 - 110	-181.5	
63	Cu	1	72	0.06	ppb	6.91	0.46	90 - 110	61.1	
66	Zn	1	72	-0.15	ppb	9.21	1.20	90 - 110	-63.4	
75	As	1	72	0.05	ppb	3.10	0.31	90 - 110	76.4	
78	Se	1	72	-0.10	ppb	47.58	0.07	90 - 110	-730.6	
88	Sr	2	115	0.02	ppb	8.79	0.04	90 - 110	206.0	
95	Mo	2	115	0.34	ppb	3.20	0.61	90 - 110	281.2	
107	Ag	2	115	0.00	ppb	22.42	0.00	90 - 110	######	
111	Cd	2	115	-0.01	ppb	21.48	-0.01	90 - 110	252.2	
118	Sn	2	115	-0.09	ppb	11.64	-0.08	90 - 110	543.3	
121	Sb	2	115	0.02	ppb	19.58	0.01	90 - 110	1108.2	
137	Ba	2	115	-0.01	ppb	16.06	0.01	90 - 110	-408.8	
205	Tl	2	209	0.04	ppb	2.76	0.04	90 - 110	523.0	
208	Pb	2	209	-0.02	ppb	6.47	-0.01	90 - 110	669.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	2339292.30	0.12	2847198.30	82.2	70 -	120	
45	Sc	1	67316.49	1.77	85579.54	78.7	70 -	120	
45	Sc	2	3193071.30	0.68	3826008.80	83.5	70 -	120	
72	Ge	1	40691.54	1.60	50553.60	80.5	70 -	120	
115	In	2	3966755.30	0.36	4785742.00	82.9	70 -	120	
209	Bi	2	2798201.80	0.52	3235410.00	86.5	70 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\172SMPL.D\172SMPL.D#

Date Acquired:	Mar 25 2014 04:10 am	Sample Name:	**1403158-19A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	-20960.000	ppb	#REF!	0.61	2000.00	ND
9	Be	2	45	0.016	ppb	#REF!	22.08	2000.00	ND
11	B	2	45	385.500	ppb	#REF!	1.33	2000.00	>RL
23	Na	1	45	29200.000	ppb	#REF!	1.55	25000.00	OUTCAL
24	Mg	1	45	7230.000	ppb	#REF!	2.23	25000.00	>RL
27	Al	1	45	206.100	ppb	#REF!	4.63	10000.00	>RL
39	K	1	45	8615.000	ppb	#REF!	3.11	25000.00	>RL
44	Ca	2	45	217700.000	ppb	#REF!	1.01	25000.00	OUTCAL
47	Ti	1	45	1.677	ppb	#REF!	36.73	2000.00	ND
51	V	1	45	4.244	ppb	#REF!	4.74	2000.00	J
52	Cr	1	45	0.776	ppb	#REF!	1.83	2000.00	ND
55	Mn	1	45	1117.000	ppb	#REF!	2.93	2000.00	>RL
56	Fe	1	72	1963.000	ppb	#REF!	3.22	10000.00	>RL
59	Co	1	72	3.096	ppb	#REF!	1.90	2000.00	J
60	Ni	1	72	5.341	ppb	#REF!	4.80	2000.00	J
63	Cu	1	72	3.816	ppb	#REF!	1.95	2000.00	J
66	Zn	1	72	10.320	ppb	#REF!	5.95	2000.00	>RL
75	As	1	72	5.140	ppb	#REF!	2.43	2000.00	>RL
78	Se	1	72	4.338	ppb	#REF!	12.55	2000.00	J
88	Sr	2	115	671.100	ppb	#REF!	1.61	2000.00	>RL
95	Mo	2	115	1.980	ppb	#REF!	2.02	2000.00	ND
107	Ag	2	115	0.018	ppb	#REF!	14.79	500.00	ND
111	Cd	2	115	0.191	ppb	#REF!	24.22	2000.00	ND
118	Sn	2	115	0.020	ppb	#REF!	6.17	2000.00	ND
121	Sb	2	115	25.400	ppb	#REF!	1.34	500.00	>RL
137	Ba	2	115	158.900	ppb	#REF!	0.96	2000.00	>RL
205	Tl	2	209	0.045	ppb	#REF!	12.71	2000.00	ND
208	Pb	2	209	3.594	ppb	#REF!	1.18	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	1961487.90	1.28	2847198.30	68.9	70 - 120	ISFail
45	Sc	1	60233.36	2.46	85579.54	70.4	70 - 120	
45	Sc	2	3044182.30	0.55	3826008.80	79.6	70 - 120	
72	Ge	1	36634.83	1.87	50553.60	72.5	70 - 120	
115	In	2	3793467.80	0.33	4785742.00	79.3	70 - 120	
209	Bi	2	2552676.80	0.74	3235410.00	78.9	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\173SMPL.D\173SMPL.D#

Date Acquired:	Mar 25 2014 04:16 am	Sample Name:	**1403158-20A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	-12880.000	ppb	#REF!	1.24	2000.00	ND
9	Be	2	45	-0.019	ppb	#REF!	10.00	2000.00	ND
11	B	2	45	165.000	ppb	#REF!	2.54	2000.00	>RL
23	Na	1	45	26580.000	ppb	#REF!	5.01	25000.00	OUTCAL
24	Mg	1	45	8774.000	ppb	#REF!	5.64	25000.00	>RL
27	Al	1	45	8.349	ppb	#REF!	23.99	10000.00	ND
39	K	1	45	3544.000	ppb	#REF!	5.17	25000.00	>RL
44	Ca	2	45	173800.000	ppb	#REF!	1.38	25000.00	OUTCAL
47	Ti	1	45	0.105	ppb	#REF!	124.92	2000.00	ND
51	V	1	45	5.263	ppb	#REF!	10.10	2000.00	J
52	Cr	1	45	0.009	ppb	#REF!	7.26	2000.00	ND
55	Mn	1	45	1.700	ppb	#REF!	4.22	2000.00	ND
56	Fe	1	72	11.210	ppb	#REF!	4.20	10000.00	ND
59	Co	1	72	0.179	ppb	#REF!	12.34	2000.00	ND
60	Ni	1	72	1.395	ppb	#REF!	1.24	2000.00	ND
63	Cu	1	72	0.398	ppb	#REF!	4.79	2000.00	ND
66	Zn	1	72	2.749	ppb	#REF!	18.07	2000.00	J
75	As	1	72	14.930	ppb	#REF!	5.68	2000.00	>RL
78	Se	1	72	55.460	ppb	#REF!	9.71	2000.00	>RL
88	Sr	2	115	631.800	ppb	#REF!	2.15	2000.00	>RL
95	Mo	2	115	12.370	ppb	#REF!	1.81	2000.00	>RL
107	Ag	2	115	-0.008	ppb	#REF!	28.87	500.00	ND
111	Cd	2	115	0.050	ppb	#REF!	21.33	2000.00	ND
118	Sn	2	115	-0.043	ppb	#REF!	10.00	2000.00	ND
121	Sb	2	115	48.980	ppb	#REF!	1.71	500.00	>RL
137	Ba	2	115	45.440	ppb	#REF!	3.31	2000.00	>RL
205	Tl	2	209	0.072	ppb	#REF!	5.21	2000.00	ND
208	Pb	2	209	0.067	ppb	#REF!	7.01	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2066793.30	0.92	2847198.30	72.6	70 - 120	
45	Sc	1	64622.43	4.97	85579.54	75.5	70 - 120	
45	Sc	2	3225751.00	2.00	3826008.80	84.3	70 - 120	
72	Ge	1	38900.95	4.92	50553.60	76.9	70 - 120	
115	In	2	4003162.50	1.72	4785742.00	83.6	70 - 120	
209	Bi	2	2696225.50	1.60	3235410.00	83.3	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\174SMPL.D\174SMPL.D#

Date Acquired:	Mar 25 2014 04:22 am	Sample Name:	**1403158-21A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	-6981.000	ppb	#REF!	1.85	2000.00	ND
9	Be	2	45	-0.008	ppb	#REF!	42.86	2000.00	ND
11	B	2	45	527.100	ppb	#REF!	1.72	2000.00	>RL
23	Na	1	45	18920.000	ppb	#REF!	1.93	25000.00	>RL
24	Mg	1	45	8272.000	ppb	#REF!	3.07	25000.00	>RL
27	Al	1	45	110.900	ppb	#REF!	5.25	10000.00	>RL
39	K	1	45	16580.000	ppb	#REF!	3.02	25000.00	>RL
44	Ca	2	45	152500.000	ppb	#REF!	1.97	25000.00	OUTCAL
47	Ti	1	45	4.873	ppb	#REF!	16.90	2000.00	J
51	V	1	45	8.270	ppb	#REF!	5.17	2000.00	J
52	Cr	1	45	0.251	ppb	#REF!	1.74	2000.00	ND
55	Mn	1	45	9.335	ppb	#REF!	3.99	2000.00	J
56	Fe	1	72	104.600	ppb	#REF!	4.28	10000.00	>RL
59	Co	1	72	0.084	ppb	#REF!	9.01	2000.00	ND
60	Ni	1	72	0.555	ppb	#REF!	2.75	2000.00	ND
63	Cu	1	72	0.498	ppb	#REF!	8.59	2000.00	ND
66	Zn	1	72	3.774	ppb	#REF!	7.76	2000.00	J
75	As	1	72	38.720	ppb	#REF!	4.39	2000.00	>RL
78	Se	1	72	16.110	ppb	#REF!	6.99	2000.00	>RL
88	Sr	2	115	436.800	ppb	#REF!	1.04	2000.00	>RL
95	Mo	2	115	8.265	ppb	#REF!	1.55	2000.00	>RL
107	Ag	2	115	-0.002	ppb	#REF!	6.25	500.00	ND
111	Cd	2	115	0.029	ppb	#REF!	36.64	2000.00	ND
118	Sn	2	115	-0.043	ppb	#REF!	19.32	2000.00	ND
121	Sb	2	115	130.900	ppb	#REF!	1.54	500.00	>RL
137	Ba	2	115	109.500	ppb	#REF!	0.26	2000.00	>RL
205	Tl	2	209	0.116	ppb	#REF!	4.79	2000.00	ND
208	Pb	2	209	0.160	ppb	#REF!	7.41	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2016796.90	1.69	2847198.30	70.8	70 - 120	
45	Sc	1	66897.88	3.16	85579.54	78.2	70 - 120	
45	Sc	2	3137413.00	1.63	3826008.80	82.0	70 - 120	
72	Ge	1	40293.09	2.71	50553.60	79.7	70 - 120	
115	In	2	3924956.50	1.81	4785742.00	82.0	70 - 120	
209	Bi	2	2658041.00	1.00	3235410.00	82.2	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\175SMPL.D\175SMPL.D#

Date Acquired:	Mar 25 2014 04:28 am	Sample Name:	**1403158-22A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	-15300.000	ppb	#REF!	0.51	2000.00	ND
9	Be	2	45	0.003	ppb	#REF!	24.59	2000.00	ND
11	B	2	45	330.800	ppb	#REF!	1.55	2000.00	>RL
23	Na	1	45	33610.000	ppb	#REF!	0.16	25000.00	OUTCAL
24	Mg	1	45	9882.000	ppb	#REF!	1.58	25000.00	>RL
27	Al	1	45	154.400	ppb	#REF!	3.80	10000.00	>RL
39	K	1	45	9982.000	ppb	#REF!	1.51	25000.00	>RL
44	Ca	2	45	202400.000	ppb	#REF!	1.08	25000.00	OUTCAL
47	Ti	1	45	2.419	ppb	#REF!	31.18	2000.00	ND
51	V	1	45	20.820	ppb	#REF!	2.07	2000.00	>RL
52	Cr	1	45	0.514	ppb	#REF!	7.55	2000.00	ND
55	Mn	1	45	72.490	ppb	#REF!	2.09	2000.00	>RL
56	Fe	1	72	543.200	ppb	#REF!	2.11	10000.00	>RL
59	Co	1	72	0.825	ppb	#REF!	7.14	2000.00	ND
60	Ni	1	72	1.081	ppb	#REF!	0.89	2000.00	ND
63	Cu	1	72	0.798	ppb	#REF!	2.21	2000.00	ND
66	Zn	1	72	3.308	ppb	#REF!	1.62	2000.00	J
75	As	1	72	446.900	ppb	#REF!	1.63	2000.00	>RL
78	Se	1	72	97.790	ppb	#REF!	2.33	2000.00	>RL
88	Sr	2	115	599.200	ppb	#REF!	0.36	2000.00	>RL
95	Mo	2	115	18.930	ppb	#REF!	1.72	2000.00	>RL
107	Ag	2	115	0.002	ppb	#REF!	5.26	500.00	ND
111	Cd	2	115	0.036	ppb	#REF!	18.35	2000.00	ND
118	Sn	2	115	-0.061	ppb	#REF!	4.27	2000.00	ND
121	Sb	2	115	305.000	ppb	#REF!	0.87	500.00	>RL
137	Ba	2	115	58.360	ppb	#REF!	1.22	2000.00	>RL
205	Tl	2	209	0.070	ppb	#REF!	5.42	2000.00	ND
208	Pb	2	209	0.894	ppb	#REF!	1.33	2000.00	J

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2033180.10	1.51	2847198.30	71.4	70 - 120	
45	Sc	1	66260.45	1.45	85579.54	77.4	70 - 120	
45	Sc	2	3186732.80	0.60	3826008.80	83.3	70 - 120	
72	Ge	1	39690.89	1.54	50553.60	78.5	70 - 120	
115	In	2	3917978.80	1.20	4785742.00	81.9	70 - 120	
209	Bi	2	2637543.30	0.72	3235410.00	81.5	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\176SMPL.D\176SMPL.D#

Date Acquired:	Mar 25 2014 04:34 am	Sample Name:	**1403158-23A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	-3893.000	ppb	#REF!	1.41	2000.00	ND
9	Be	2	45	0.052	ppb	#REF!	6.06	2000.00	ND
11	B	2	45	63.430	ppb	#REF!	2.27	2000.00	>RL
23	Na	1	45	55710.000	ppb	#REF!	2.22	25000.00	OUTCAL
24	Mg	1	45	6134.000	ppb	#REF!	2.63	25000.00	>RL
27	Al	1	45	684.400	ppb	#REF!	4.16	10000.00	>RL
39	K	1	45	1940.000	ppb	#REF!	2.65	25000.00	>RL
44	Ca	2	45	125100.000	ppb	#REF!	1.93	25000.00	OUTCAL
47	Ti	1	45	22.240	ppb	#REF!	30.72	2000.00	>RL
51	V	1	45	2.982	ppb	#REF!	3.69	2000.00	ND
52	Cr	1	45	1.687	ppb	#REF!	4.28	2000.00	ND
55	Mn	1	45	128.700	ppb	#REF!	3.66	2000.00	>RL
56	Fe	1	72	1098.000	ppb	#REF!	3.88	10000.00	>RL
59	Co	1	72	3.082	ppb	#REF!	4.80	2000.00	J
60	Ni	1	72	7.255	ppb	#REF!	2.10	2000.00	J
63	Cu	1	72	64.280	ppb	#REF!	2.32	2000.00	>RL
66	Zn	1	72	94.810	ppb	#REF!	4.61	2000.00	>RL
75	As	1	72	44.650	ppb	#REF!	1.42	2000.00	>RL
78	Se	1	72	11.440	ppb	#REF!	3.55	2000.00	>RL
88	Sr	2	115	283.400	ppb	#REF!	1.55	2000.00	>RL
95	Mo	2	115	38.630	ppb	#REF!	1.81	2000.00	>RL
107	Ag	2	115	0.073	ppb	#REF!	8.33	500.00	ND
111	Cd	2	115	1.527	ppb	#REF!	4.55	2000.00	>RL
118	Sn	2	115	1.055	ppb	#REF!	6.94	2000.00	ND
121	Sb	2	115	149.400	ppb	#REF!	1.43	500.00	>RL
137	Ba	2	115	45.270	ppb	#REF!	4.02	2000.00	>RL
205	Tl	2	209	0.053	ppb	#REF!	27.00	2000.00	ND
208	Pb	2	209	26.830	ppb	#REF!	2.14	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2005020.40	1.39	2847198.30	70.4	70 - 120	
45	Sc	1	61533.11	2.50	85579.54	71.9	70 - 120	
45	Sc	2	2968129.00	1.18	3826008.80	77.6	70 - 120	
72	Ge	1	36927.23	2.25	50553.60	73.0	70 - 120	
115	In	2	3656461.30	1.49	4785742.00	76.4	70 - 120	
209	Bi	2	2465869.30	1.50	3235410.00	76.2	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\177SMPL.D\177SMPL.D#

Date Acquired:	Mar 25 2014 04:41 am	Sample Name:	**1403158-24A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	-16680.000	ppb	#REF!	1.93	2000.00	ND
9	Be	2	45	0.003	ppb	#REF!	19.25	2000.00	ND
11	B	2	45	332.700	ppb	#REF!	2.62	2000.00	>RL
23	Na	1	45	34010.000	ppb	#REF!	1.84	25000.00	OUTCAL
24	Mg	1	45	10080.000	ppb	#REF!	2.40	25000.00	>RL
27	Al	1	45	205.900	ppb	#REF!	2.65	10000.00	>RL
39	K	1	45	10180.000	ppb	#REF!	1.87	25000.00	>RL
44	Ca	2	45	216700.000	ppb	#REF!	3.16	25000.00	OUTCAL
47	Ti	1	45	3.130	ppb	#REF!	26.25	2000.00	J
51	V	1	45	22.130	ppb	#REF!	2.45	2000.00	>RL
52	Cr	1	45	0.582	ppb	#REF!	11.83	2000.00	ND
55	Mn	1	45	92.720	ppb	#REF!	1.84	2000.00	>RL
56	Fe	1	72	746.300	ppb	#REF!	2.78	10000.00	>RL
59	Co	1	72	1.029	ppb	#REF!	6.48	2000.00	ND
60	Ni	1	72	1.097	ppb	#REF!	5.70	2000.00	ND
63	Cu	1	72	0.970	ppb	#REF!	5.44	2000.00	ND
66	Zn	1	72	3.589	ppb	#REF!	13.90	2000.00	J
75	As	1	72	463.300	ppb	#REF!	2.55	2000.00	>RL
78	Se	1	72	95.380	ppb	#REF!	3.44	2000.00	>RL
88	Sr	2	115	624.400	ppb	#REF!	2.37	2000.00	>RL
95	Mo	2	115	19.260	ppb	#REF!	1.12	2000.00	>RL
107	Ag	2	115	-0.002	ppb	#REF!	25.79	500.00	ND
111	Cd	2	115	0.017	ppb	#REF!	33.43	2000.00	ND
118	Sn	2	115	-0.028	ppb	#REF!	5.99	2000.00	ND
121	Sb	2	115	316.000	ppb	#REF!	2.38	500.00	>RL
137	Ba	2	115	60.460	ppb	#REF!	1.89	2000.00	>RL
205	Tl	2	209	0.087	ppb	#REF!	7.26	2000.00	ND
208	Pb	2	209	1.137	ppb	#REF!	4.57	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2031795.10	1.54	2847198.30	71.4	70 - 120	
45	Sc	1	63599.78	2.22	85579.54	74.3	70 - 120	
45	Sc	2	3098612.30	2.49	3826008.80	81.0	70 - 120	
72	Ge	1	38672.11	1.76	50553.60	76.5	70 - 120	
115	In	2	3801468.80	2.50	4785742.00	79.4	70 - 120	
209	Bi	2	2577791.00	2.39	3235410.00	79.7	70 - 120	

PDS QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\178_PDS.D\178_PDS.D#

Date Acquired:	Mar 25 2014 04:47 am	Sample Name:	**1403188-01A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	4853.00	ppb	0.84	#########	200	75-125	######	Fail
9	Be	2	45	178.00	ppb	0.92	-0.02	200	75-125	89.0	
11	B	2	45	183.90	ppb	1.03	9.40	200	75-125	87.2	
23	Na	1	45	5018.00	ppb	2.31	165.60	5000	75-125	97.0	
24	Mg	1	45	4745.00	ppb	3.61	4.14	5000	75-125	94.8	
27	Al	1	45	4835.00	ppb	4.41	6.21	5000	75-125	96.6	
39	K	1	45	4824.00	ppb	2.86	15.11	5000	75-125	96.2	
44	Ca	2	45	4847.00	ppb	0.63	13.26	5000	75-125	96.7	
47	Ti	1	45	192.00	ppb	5.85	0.17	200	75-125	95.9	
51	V	1	45	188.10	ppb	3.92	0.07	200	75-125	94.0	
52	Cr	1	45	193.30	ppb	3.69	0.03	200	75-125	96.6	
55	Mn	1	45	200.00	ppb	4.91	0.35	200	75-125	99.8	
56	Fe	1	72	4959.00	ppb	4.05	29.62	5000	75-125	98.6	
59	Co	1	72	194.20	ppb	3.31	0.00	200	75-125	97.1	
60	Ni	1	72	198.10	ppb	3.36	0.08	200	75-125	99.0	
63	Cu	1	72	194.10	ppb	3.56	0.46	200	75-125	96.8	
66	Zn	1	72	199.80	ppb	4.16	1.20	200	75-125	99.3	
75	As	1	72	197.50	ppb	3.67	0.31	200	75-125	98.6	
78	Se	1	72	195.00	ppb	6.85	0.07	200	75-125	97.5	
88	Sr	2	115	205.00	ppb	1.67	0.04	200	75-125	102.5	
95	Mo	2	115	180.80	ppb	0.83	0.61	200	75-125	90.1	
107	Ag	2	115	185.10	ppb	1.01	0.00	200	75-125	92.6	
111	Cd	2	115	188.30	ppb	1.79	-0.01	200	75-125	94.2	
118	Sn	2	115	191.70	ppb	0.45	-0.08	200	75-125	95.9	
121	Sb	2	115	170.30	ppb	0.57	0.01	200	75-125	85.1	
137	Ba	2	115	188.60	ppb	1.58	0.01	200	75-125	94.3	
205	Tl	2	209	186.30	ppb	0.96	0.04	200	75-125	93.1	
208	Pb	2	209	187.60	ppb	1.28	-0.01	200	75-125	93.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2171678.50	0.71	2847198.30	76.3	70 - 120	
45	Sc	1	64875.77	2.44	85579.54	75.8	70 - 120	
45	Sc	2	3142878.00	1.26	3826008.80	82.1	70 - 120	
72	Ge	1	38939.70	2.45	50553.60	77.0	70 - 120	
115	In	2	3884596.30	1.02	4785742.00	81.2	70 - 120	
209	Bi	2	2696661.80	0.98	3235410.00	83.3	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\179_MS.D\179_MS.D#

Date Acquired:	Mar 25 2014 04:53 am	Sample Name:	**1403188-01A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	4323.00	ppb	0.49	########	200	80-120	######	Fail
9	Be	2	45	182.00	ppb	1.04	-0.02	200	80-120	91.0	
11	B	2	45	193.10	ppb	1.21	9.40	200	80-120	91.8	
23	Na	1	45	5102.00	ppb	1.32	165.60	5000	80-120	98.7	
24	Mg	1	45	4772.00	ppb	1.79	4.14	5000	80-120	95.4	
27	Al	1	45	4937.00	ppb	3.01	6.21	5000	80-120	98.6	
39	K	1	45	4900.00	ppb	1.33	15.11	5000	80-120	97.7	
44	Ca	2	45	4840.00	ppb	0.49	13.26	5000	80-120	96.5	
47	Ti	1	45	198.70	ppb	3.22	0.17	200	80-120	99.3	
51	V	1	45	195.90	ppb	2.14	0.07	200	80-120	97.9	
52	Cr	1	45	197.90	ppb	2.76	0.03	200	80-120	98.9	
55	Mn	1	45	205.10	ppb	2.16	0.35	200	80-120	102.4	
56	Fe	1	72	5153.00	ppb	2.46	29.62	5000	80-120	102.5	
59	Co	1	72	195.90	ppb	1.86	0.00	200	80-120	98.0	
60	Ni	1	72	202.20	ppb	2.05	0.08	200	80-120	101.1	
63	Cu	1	72	200.00	ppb	1.59	0.46	200	80-120	99.8	
66	Zn	1	72	207.90	ppb	1.75	1.20	200	80-120	103.4	
75	As	1	72	205.60	ppb	2.30	0.31	200	80-120	102.6	
78	Se	1	72	196.80	ppb	3.45	0.07	200	80-120	98.4	
88	Sr	2	115	211.00	ppb	0.47	0.04	200	80-120	105.5	
95	Mo	2	115	197.80	ppb	0.66	0.61	200	80-120	98.6	
107	Ag	2	115	193.70	ppb	0.58	0.00	200	80-120	96.9	
111	Cd	2	115	193.90	ppb	0.92	-0.01	200	80-120	97.0	
118	Sn	2	115	192.30	ppb	0.41	-0.08	200	80-120	96.2	
121	Sb	2	115	196.30	ppb	0.28	0.01	200	80-120	98.1	
137	Ba	2	115	194.20	ppb	0.48	0.01	200	80-120	97.1	
205	Tl	2	209	194.20	ppb	0.49	0.04	200	80-120	97.1	
208	Pb	2	209	194.20	ppb	0.71	-0.01	200	80-120	97.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2154428.30	0.78	2847198.30	75.7	70 - 120	
45	Sc	1	62949.08	2.00	85579.54	73.6	70 - 120	
45	Sc	2	3087136.30	0.52	3826008.80	80.7	70 - 120	
72	Ge	1	37935.15	1.23	50553.60	75.0	70 - 120	
115	In	2	3815088.80	0.27	4785742.00	79.7	70 - 120	
209	Bi	2	2625187.50	0.28	3235410.00	81.1	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\180_MS.D\180_MS.D#

Date Acquired:	Mar 25 2014 04:59 am	Sample Name:	**1403188-01A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	4328.00	ppb	1.57	########	200	80-120	######	Fail
9	Be	2	45	184.90	ppb	1.08	-0.02	200	80-120	92.5	
11	B	2	45	197.00	ppb	1.69	9.40	200	80-120	93.8	
23	Na	1	45	5096.00	ppb	1.01	165.60	5000	80-120	98.6	
24	Mg	1	45	4774.00	ppb	2.93	4.14	5000	80-120	95.4	
27	Al	1	45	4879.00	ppb	2.71	6.21	5000	80-120	97.5	
39	K	1	45	4909.00	ppb	2.06	15.11	5000	80-120	97.9	
44	Ca	2	45	4839.00	ppb	0.92	13.26	5000	80-120	96.5	
47	Ti	1	45	201.90	ppb	3.02	0.17	200	80-120	100.9	
51	V	1	45	197.20	ppb	2.35	0.07	200	80-120	98.6	
52	Cr	1	45	197.00	ppb	2.49	0.03	200	80-120	98.5	
55	Mn	1	45	204.30	ppb	2.91	0.35	200	80-120	102.0	
56	Fe	1	72	5161.00	ppb	1.90	29.62	5000	80-120	102.6	
59	Co	1	72	197.70	ppb	2.05	0.00	200	80-120	98.9	
60	Ni	1	72	201.70	ppb	2.52	0.08	200	80-120	100.8	
63	Cu	1	72	200.50	ppb	2.04	0.46	200	80-120	100.0	
66	Zn	1	72	208.80	ppb	1.27	1.20	200	80-120	103.8	
75	As	1	72	206.50	ppb	2.31	0.31	200	80-120	103.1	
78	Se	1	72	202.40	ppb	2.75	0.07	200	80-120	101.2	
88	Sr	2	115	212.80	ppb	0.59	0.04	200	80-120	106.4	
95	Mo	2	115	198.40	ppb	0.76	0.61	200	80-120	98.9	
107	Ag	2	115	194.70	ppb	0.93	0.00	200	80-120	97.4	
111	Cd	2	115	195.70	ppb	1.44	-0.01	200	80-120	97.9	
118	Sn	2	115	192.70	ppb	1.13	-0.08	200	80-120	96.4	
121	Sb	2	115	195.30	ppb	1.08	0.01	200	80-120	97.6	
137	Ba	2	115	194.10	ppb	1.11	0.01	200	80-120	97.0	
205	Tl	2	209	194.50	ppb	1.27	0.04	200	80-120	97.2	
208	Pb	2	209	194.40	ppb	0.95	-0.01	200	80-120	97.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2182115.50	1.46	2847198.30	76.6	70 - 120	
45	Sc	1	63552.04	1.24	85579.54	74.3	70 - 120	
45	Sc	2	3105525.80	0.61	3826008.80	81.2	70 - 120	
72	Ge	1	38158.11	1.63	50553.60	75.5	70 - 120	
115	In	2	3822996.30	1.19	4785742.00	79.9	70 - 120	
209	Bi	2	2646930.50	1.16	3235410.00	81.8	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\181CCV1.D\181CCV1.D#

Date Acquired:	Mar 25 2014 05:05 am	Sample Name:	**CCV6-140324**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	3808.00	ppb	0.99	200.00	90 -	110	1904.0	Fail
9	Be	2	45	186.00	ppb	1.39	200.00	90 -	110	93.0	
11	B	2	45	190.70	ppb	0.47	200.00	90 -	110	95.4	
23	Na	1	45	5467.00	ppb	1.40	5000.00	90 -	110	109.3	
24	Mg	1	45	5149.00	ppb	1.75	5000.00	90 -	110	103.0	
27	Al	1	45	5012.00	ppb	3.29	5000.00	90 -	110	100.2	
39	K	1	45	5334.00	ppb	2.44	5000.00	90 -	110	106.7	
44	Ca	2	45	5161.00	ppb	0.71	5000.00	90 -	110	103.2	
47	Ti	1	45	206.50	ppb	1.18	200.00	90 -	110	103.3	
51	V	1	45	201.40	ppb	3.22	200.00	90 -	110	100.7	
52	Cr	1	45	202.80	ppb	3.23	200.00	90 -	110	101.4	
55	Mn	1	45	209.60	ppb	2.27	200.00	90 -	110	104.8	
56	Fe	1	72	5301.00	ppb	2.97	5000.00	90 -	110	106.0	
59	Co	1	72	201.60	ppb	2.45	200.00	90 -	110	100.8	
60	Ni	1	72	207.40	ppb	2.20	200.00	90 -	110	103.7	
63	Cu	1	72	204.30	ppb	2.63	200.00	90 -	110	102.2	
66	Zn	1	72	210.60	ppb	2.43	200.00	90 -	110	105.3	
75	As	1	72	208.40	ppb	2.11	200.00	90 -	110	104.2	
78	Se	1	72	203.60	ppb	5.58	200.00	90 -	110	101.8	
88	Sr	2	115	217.00	ppb	0.75	200.00	90 -	110	108.5	
95	Mo	2	115	202.30	ppb	0.17	200.00	90 -	110	101.2	
107	Ag	2	115	197.50	ppb	0.53	200.00	90 -	110	98.8	
111	Cd	2	115	196.80	ppb	1.57	200.00	90 -	110	98.4	
118	Sn	2	115	197.50	ppb	0.26	200.00	90 -	110	98.8	
121	Sb	2	115	198.30	ppb	0.54	200.00	90 -	110	99.2	
137	Ba	2	115	197.00	ppb	0.75	200.00	90 -	110	98.5	
205	Tl	2	209	199.80	ppb	0.77	200.00	90 -	110	99.9	
208	Pb	2	209	199.30	ppb	0.53	200.00	90 -	110	99.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	2162210.30	0.77	2847198.30	75.9	70 -	120		
45	Sc	1	62105.22	1.97	85579.54	72.6	70 -	120		
45	Sc	2	3047786.30	0.71	3826008.80	79.7	70 -	120		
72	Ge	1	37448.81	1.26	50553.60	74.1	70 -	120		
115	In	2	3754706.50	0.79	4785742.00	78.5	70 -	120		
209	Bi	2	2576640.00	0.51	3235410.00	79.6	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\187LCVL.D\187LCVL.D#

Date Acquired:	Mar 25 2014 05:41 am	Sample Name:	**LCVL6-140324**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	3648.00	ppb	0.66	5.00	70 -	130	######	Fail
9	Be	2	45	0.91	ppb	5.61	1.00	70 -	130	91.0	
11	B	2	45	19.09	ppb	1.58	20.00	70 -	130	95.5	
23	Na	1	45	250.20	ppb	0.35	100.00	70 -	130	250.2	Fail
24	Mg	1	45	95.26	ppb	7.98	100.00	70 -	130	95.3	
27	Al	1	45	95.69	ppb	1.43	100.00	70 -	130	95.7	
39	K	1	45	118.10	ppb	4.70	100.00	70 -	130	118.1	
44	Ca	2	45	102.90	ppb	2.00	100.00	70 -	130	102.9	
47	Ti	1	45	5.15	ppb	13.48	5.00	70 -	130	103.0	
51	V	1	45	0.99	ppb	5.58	1.00	70 -	130	98.9	
52	Cr	1	45	4.90	ppb	2.73	5.00	70 -	130	97.9	
55	Mn	1	45	5.13	ppb	4.86	5.00	70 -	130	102.6	
56	Fe	1	72	94.04	ppb	2.22	100.00	70 -	130	94.0	
59	Co	1	72	4.86	ppb	2.17	5.00	70 -	130	97.2	
60	Ni	1	72	5.11	ppb	3.50	5.00	70 -	130	102.2	
63	Cu	1	72	5.12	ppb	1.53	5.00	70 -	130	102.3	
66	Zn	1	72	4.63	ppb	6.40	5.00	70 -	130	92.7	
75	As	1	72	4.97	ppb	2.64	5.00	70 -	130	99.4	
78	Se	1	72	4.13	ppb	12.85	5.00	70 -	130	82.7	
88	Sr	2	115	4.79	ppb	0.78	5.00	70 -	130	95.8	
95	Mo	2	115	4.43	ppb	1.35	5.00	70 -	130	88.6	
107	Ag	2	115	1.77	ppb	4.23	2.00	70 -	130	88.3	
111	Cd	2	115	0.98	ppb	6.55	1.00	70 -	130	98.3	
118	Sn	2	115	4.74	ppb	4.39	5.00	70 -	130	94.8	
121	Sb	2	115	1.83	ppb	6.49	2.00	70 -	130	91.4	
137	Ba	2	115	4.63	ppb	5.35	5.00	70 -	130	92.5	
205	Tl	2	209	1.03	ppb	4.45	1.00	70 -	130	103.2	
208	Pb	2	209	0.93	ppb	2.01	1.00	70 -	130	92.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	2211995.50	0.19	2847198.30	77.7	70 -	120		
45	Sc	1	61990.69	2.45	85579.54	72.4	70 -	120		
45	Sc	2	3082986.30	0.94	3826008.80	80.6	70 -	120		
72	Ge	1	37521.91	1.60	50553.60	74.2	70 -	120		
115	In	2	3837432.80	0.26	4785742.00	80.2	70 -	120		
209	Bi	2	2663795.50	0.92	3235410.00	82.3	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14C24k01.B\189_CCB.D\189_CCB.D#

Date Acquired:	Mar 25 2014 05:53 am	Sample Name:	**CCB6-140324**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Mar 24 2014 03:00 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	2905.000	ppb	0.92	2.00	2.00	Failsoil
9	Be	2	45	0.000	ppb	17.67	0.10	0.30	
11	B	2	45	1.733	ppb	3.85	10.00	10.00	
23	Na	1	45	141.200	ppb	3.01	50.00	#####	Failsoil
24	Mg	1	45	-0.275	ppb	4.19	50.00	#####	
27	Al	1	45	-0.732	ppb	17.64	50.00	10.00	
39	K	1	45	18.360	ppb	6.79	50.00	#####	
44	Ca	2	45	8.211	ppb	2.28	50.00	#####	
47	Ti	1	45	0.006	ppb	99.97	4.00	3.00	
51	V	1	45	0.066	ppb	11.66	4.00	3.00	
52	Cr	1	45	-0.033	ppb	9.33	2.00	2.00	
55	Mn	1	45	0.039	ppb	19.47	2.00	3.00	
56	Fe	1	72	-0.772	ppb	4.34	50.00	50.00	
59	Co	1	72	0.001	ppb	34.44	2.00	3.00	
60	Ni	1	72	0.008	ppb	49.17	2.00	3.00	
63	Cu	1	72	0.040	ppb	6.18	2.00	2.00	
66	Zn	1	72	-0.384	ppb	24.21	4.00	2.00	
75	As	1	72	0.069	ppb	3.16	2.00	2.00	
78	Se	1	72	-0.017	ppb	45.58	0.60	2.00	
88	Sr	2	115	0.055	ppb	6.83	4.00	3.00	
95	Mo	2	115	-0.004	ppb	4.23	2.00	2.00	
107	Ag	2	115	0.002	ppb	12.60	0.40	1.00	
111	Cd	2	115	-0.003	ppb	55.80	0.40	0.30	
118	Sn	2	115	-0.049	ppb	21.88	4.00	3.00	
121	Sb	2	115	0.135	ppb	6.98	2.00	0.80	
137	Ba	2	115	0.005	ppb	46.10	2.00	3.00	
205	Tl	2	209	0.073	ppb	5.55	2.00	0.50	
208	Pb	2	209	-0.014	ppb	12.76	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2221232.00	0.38	2847198.30	78.0	70 - 120	
45	Sc	1	61481.08	1.31	85579.54	71.8	70 - 120	
45	Sc	2	3030290.00	0.54	3826008.80	79.2	70 - 120	
72	Ge	1	37085.01	1.76	50553.60	73.4	70 - 120	
115	In	2	3768627.80	1.00	4785742.00	78.7	70 - 120	
209	Bi	2	2627303.50	0.95	3235410.00	81.2	70 - 120	

ECS Environmental Chemistry Services

PO Box 79782 Houston, TX 77279♦Voice/Fax:(713) 935-0222♦ecschem@sbcglobal.net

To: William Gamblin, Project Manager, Daniel B. Stephens & Associates, Inc.

From: Nan Toole, ECS Environmental Chemistry Services

Date: 06/14/2014

Re: Data Review Memorandum, Rockwool Industries, Inc. Federal Superfund Site, Groundwater Sampling Event, May 2014

This Data Review Memorandum summarizes the results of the data review conducted for samples collected during May 2014 from the Rockwool Industries, Inc. Federal Superfund Site. ECS Environmental Chemistry Services (ECS) reviewed chemical data analyzed by DHL Analytical in Round Rock, Texas. The following data are covered by this memo:

DATA PACKAGE	LAB SAMPLE ID	FIELD SAMPLE ID	DATE COLL.	MEDIA	PARAMETER
1405261	1405261-01	MW-22	05/21/2014	Aqueous	MET
	1405261-02	MW-37-90	05/21/2014	Aqueous	MET
	1405261-03	MW-21	05/21/2014	Aqueous	MET
	1405261-04	MW-38-90	05/21/2014	Aqueous	MET
	1405261-05	MW-35-90	05/21/2014	Aqueous	MET
	1405261-06	MW-10	05/21/2014	Aqueous	MET
	1405261-07	MW-30-90	05/21/2014	Aqueous	MET
	1405261-08	MW-29-90	05/21/2014	Aqueous	MET
	1405261-09	MW-17	05/21/2014	Aqueous	MET
	1405261-10	MW-33-90	05/21/2014	Aqueous	MET
	1405261-11	MW-34-90	05/21/2014	Aqueous	MET
	1405261-12	DUP-1	05/21/2014	Aqueous	MET
	1405261-13	DUP-2	05/21/2014	Aqueous	MET
	1405261-14	ER-1	05/21/2014	Aqueous	MET
	1405261-15	MW-20	05/21/2014	Aqueous	MET
	1405261-16	MW-11	05/21/2014	Aqueous	MET
	1405261-17	MW-14	05/21/2014	Aqueous	MET
	1405261-18	MW-7	05/21/2014	Aqueous	MET
	1405261-19	MW-19	05/21/2014	Aqueous	MET
	1405261-20	MW-24-90	05/21/2014	Aqueous	MET
	1405261-21	MW-18	05/21/2014	Aqueous	MET
	1405261-22	MW-27-90	05/21/2014	Aqueous	MET
	1405261-23	MW-28-90	05/21/2014	Aqueous	MET
	1405261-24	MW-9	05/21/2014	Aqueous	MET

MET=ICP/MS metals (antimony, arsenic, lead) by EPA Method 6020A

Analytical data were evaluated for conformance to the requirements of Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW-846) and the TCEQ Quality Assurance Project Plan (QAPP) for the Federal Superfund Program (Revision 10.0, QTRAK#13-462).

The purpose of this sampling event was to compare assess groundwater constituent concentrations. The technical data review resulted in no significant quality control anomalies, no rejected data and no corrective actions taken or recommended for future analyses.

The Data Review Results are provided in the following attachment.

ECS Environmental Chemistry Services

PO Box 79782 Houston, TX 77279♦Voice/Fax:(713) 935-0222♦ecschem@sbcglobal.net

Data Review Results Attachment

ECS Environmental Chemistry Services

PO Box 79782 Houston, TX 77279♦Voice/Fax:(713) 935-0222♦ecschem@sbcglobal.net

Data Review Results

Items identified in the Laboratory Review Checklist (LRC) as outside of control limits for laboratory performance criteria were evaluated for the data packages covered by this report. The evaluation of the sample specific items is covered below. All samples were received in good condition. A copy of the original Chain-of-Custody (C-O-C) and airbill receipt were present in the data packages. The data package included all requested analyses on the C-O-C. The following table summarizes the data review qualifiers that were applied to the data.

METALS

For metals data, the following items are reviewed in this section:

- Holding Time/Preservation Requirements
- Blanks
- Laboratory Control Samples
- Matrix Spikes
- Matrix Spike Duplicates
- Field Duplicates

The following sections specify the reasons for the data validation qualifiers that are presented in Appendix A.

Holding Time/Preservation Requirements

The maximum holding time from date of collection to date of analysis for metals in aqueous and soil matrix samples is 180 days. This holding time was met for all of the samples in this data set. None of the metals data were qualified based on holding times.

Blanks

All associated blanks were free of any reportable concentration for all reported analytes above SDLs with the following exception:

DATA PACKAGE	BLANK ID	ANALYTE	CONC.	QUALIFIED ASSOCIATED SAMPLES
1405261	ER-1	Antimony	0.000875 mg/l	1405261-01, 02, 07, 15, 18, 19, 21

If a metal is detected in a blank and is also detected in an associated sample in a concentration less than 5 times the concentration found in the blank, the sample data are qualified as not detected for that compound. Samples that had compounds qualified as NOT detected with a “U” qualifier based on these criteria are listed in the previous table**.**

ECS Environmental Chemistry Services

PO Box 79782 Houston, TX 77279♦Voice/Fax:(713) 935-0222♦ecschem@sbcglobal.net

Laboratory Control Samples (LCS)

The LCS review criteria for metals data are as follows:

ACCURACY (%R)	PRECISION (RELATIVE PERCENT DIFFERENCE)
70%-130%	30%

One LCS was analyzed with each analytical batch. These criteria were met for all the samples in this data set. None of the metals data were qualified based on LCS data.

Matrix Spikes

The matrix spike review criteria for metals data are as follows:

ACCURACY (%R)
70%-130%

One MS was analyzed with every analytical batch. These criteria were met for all the samples in this data set. None of the metals data were qualified based on matrix spike duplicate results.

Matrix Spike Duplicates

The matrix spike duplicate review criteria for metals data are as follows:

PRECISION (RELATIVE PERCENT DIFFERENCE)	DIFFERENCE
30%	+ OR- SDL*

One duplicate was analyzed with every analytical batch. These criteria were met for all the samples in this data set. None of the metals data were qualified based on duplicate data.

Field Duplicates

For aqueous matrix samples, when both the original and duplicate result are greater than 5 times the MQL, the RPD was equal to or less than 30%. For aqueous matrix samples, when one or both of the original and duplicate results are less than 5 times the MQL, the results agree within 2 times the greater SDL. The results of this evaluation of all detected results are shown in the following table:

SDG	FIELD DUP ID	ANALYTE	ORIG. RESULT	DUP. RESULT	QC RESULT	CRITERIA
E14005261	E14005261-05/12	Antimony	0.985	0.985	RPD:0%	<=30%
		Arsenic	0.0943	0.0922	RPD:2%	<=30%
		Lead	0.000506	0.000525	DIF:0.000019	<=0.0006

ECS Environmental Chemistry Services

PO Box 79782 Houston, TX 77279♦Voice/Fax:(713) 935-0222♦ecschem@sbcglobal.net

SDG	FIELD DUP ID	ANALYTE	ORIG. RESULT	DUP. RESULT	QC RESULT	CRITERIA
	E14005261-11/13	Antimony	0.324	0.329	RPD:2%	<=30%
		Arsenic	0.383	0.377	RPD:2%	<=30%

None of the metal data required qualification based on field duplicate results because data review criteria were met.

ECS Environmental Chemistry Services

PO Box 79782 Houston, TX 77279♦Voice/Fax:(713) 935-0222♦ecschem@sbcglobal.net

APPENDIX A

QUALIFIED ANALYTICAL DATA

June 06, 2014

Paul Kirby
D. B. Stephens & Assoc, Inc.
4030 W Braker #325
Austin, Texas 78759
TEL: (512) 821-2765
FAX

Order No.: 1405261

RE: TCEQ - Rockwool Belton, TX

Dear Paul Kirby:

DHL Analytical, Inc. received 24 sample(s) on 5/22/2014 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-14-12

Table of Contents

DHL ANALYTICAL

2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 65633

CHAIN-OF-CUSTODY

CLIENT: DBSA
ADDRESS: 4030 W. Braker Lane Ste 325 Austin TX 78759
PHONE: 512-821-2765 FAX/E-MAIL: wgambling@dbstephens.com
DATA REPORTED TO: wgambling@dbstephens.com
ADDITIONAL REPORT COPIES TO: invoice to esmith@dbstephens.com

DATE: 5-21-14 PAGE 1 OF 1
PO #: — DHL WORK ORDER #: 019774 #1405261
PROJECT LOCATION OR NAME: TCEQ - Rockwool Belton TX
CLENT PROJECT #: ES14AIR8.12 COLLECTOR: B.CAMACHO

Authorize 5% surcharge for TRRP Report? ☐ Yes ☒ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
MW-22	01	5-21-14	0910	W	P, 250mL	1		X		X		X	See work order for detailed list
MW-37-90	02	5-21-14	0951	W	P, 250mL	1		X		X		X	
MW-~~S~~21	03	5-21-14	1020	W	P, 250mL	3		X		X		X	→ MS/MSD
MW-38-90	04	5-21-14	1044	W	P, 250mL	1		X		X		X	
MW-35-90	05	5-21-14	1115	W	P, 250mL	1		X		X		X	
MW-10	06	5-21-14	1200	W	P, 250mL	1		X		X		X	
MW-30-90	07	5-21-14	1220	W	P, 250mL	1		X		X		X	
MW-29-90	08	5-21-14	1250	W	P, 250mL	1		X		X		X	
MW-17	09	5-21-14	1335	W	P, 250mL	1		X		X		X	
MW-33-90	10	5-21-14	1410	W	P, 250mL	1		X		X		X	
MW-34-90	11	5-21-14	1450	W	P, 250mL	1		X		X		X	
Dup-1	12	—	—	W	P, 250mL	1		X		X		X	
Dup-2	13	—	—	W	P, 250mL	1		X		X		X	
ER-1	14	5-21-14	1700	W	P, 250mL	1		X		X		X	
TOTAL						16						16	

RELINQUISHED BY: (Signature) CAMACHO, BEN DATE/TIME 5/22/14 922 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☒ DHL DISPOSAL @ $5.00 each ☐ Return

3

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 0-8 THERM #: 57
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL #: _____
☐ APC DELIVERY
☒ HAND DELIVERED

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

CHAIN-OF-CUSTODY

Nº 65634

CLIENT: DBSA
ADDRESS: 4030 W. Braker Lane Ste 325 Austin Tx 78759
PHONE: 512-821-2765 FAX/E-MAIL: wgamblin@dbstephens.com
DATA REPORTED TO: wgamblin@dbstephens.com
ADDITIONAL REPORT COPIES TO: invoice to esmith@dbstephens.com

DATE: 5-21-14 PAGE 1 OF 1
PO #: — DHL WORK ORDER #: 019774 1405261
PROJECT LOCATION OR NAME: TCEQ - Rockwool - Belton TX
CLENT PROJECT #: ES14, A1A9.12 COLLECTOR: B. CAMACHO

Authorize 5% surcharge for TRRP Report? ☐ Yes ☒ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☐ MTBE ☐ (METHOD 8021)	TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐	GRO (METHOD 8015) ☐ DRO (METHOD 8105) ☐	VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐	8081 PEST ☐ 608 PEST/PCB ☐ 8082 PCB ☐ 8270 PEST ☐	8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐	8321 HERB ☐ 8330 EXPL ☐ PERCHLORATE ☐	METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐	RCRA ☐ TX11 ☐ ____ ☐	PH ☐ HEX CHROM ☐ ALKALINITY ☐	CHLORIDE ☐ ANIONS ____ ☐	TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐	TCLP-METALS ☐ RCRA 8 ☐ TX-1 ☐ Pb ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	FIELD NOTES
MW-20	15	5-21-14	0926	W	P, 250mL	1		X		X												X						See work order for detailed list
MW-11	16	5-21-14	~~1015~~ 1016	W	P, 250mL	1		X		X												X						
MW-14	17	5-21-14	1056	W	P, 250mL	1		X		X												X						
MW-7	18	5-21-14	1154	W	P, 250mL	1		X		X												X						
MW-19	19	5-21-14	1234	W	P, 250mL	1		X		X												X						
MW-24-90	20	5-21-14	1311	W	P, 250mL	1		X		X												X						
MW-15	21	5-21-14	1356	W	P, 250mL	1		X		X												X						
MW-27-90	22	5-21-14	1511	W	P, 250mL	1		X		X												X						
MW-28-90	23	5-21-14	1456	W	P, 250mL	1		X		X												X						
MW-9	24	5-21-14	1541	W	P, 250mL	1		X		X												X						
TOTAL						10																10						

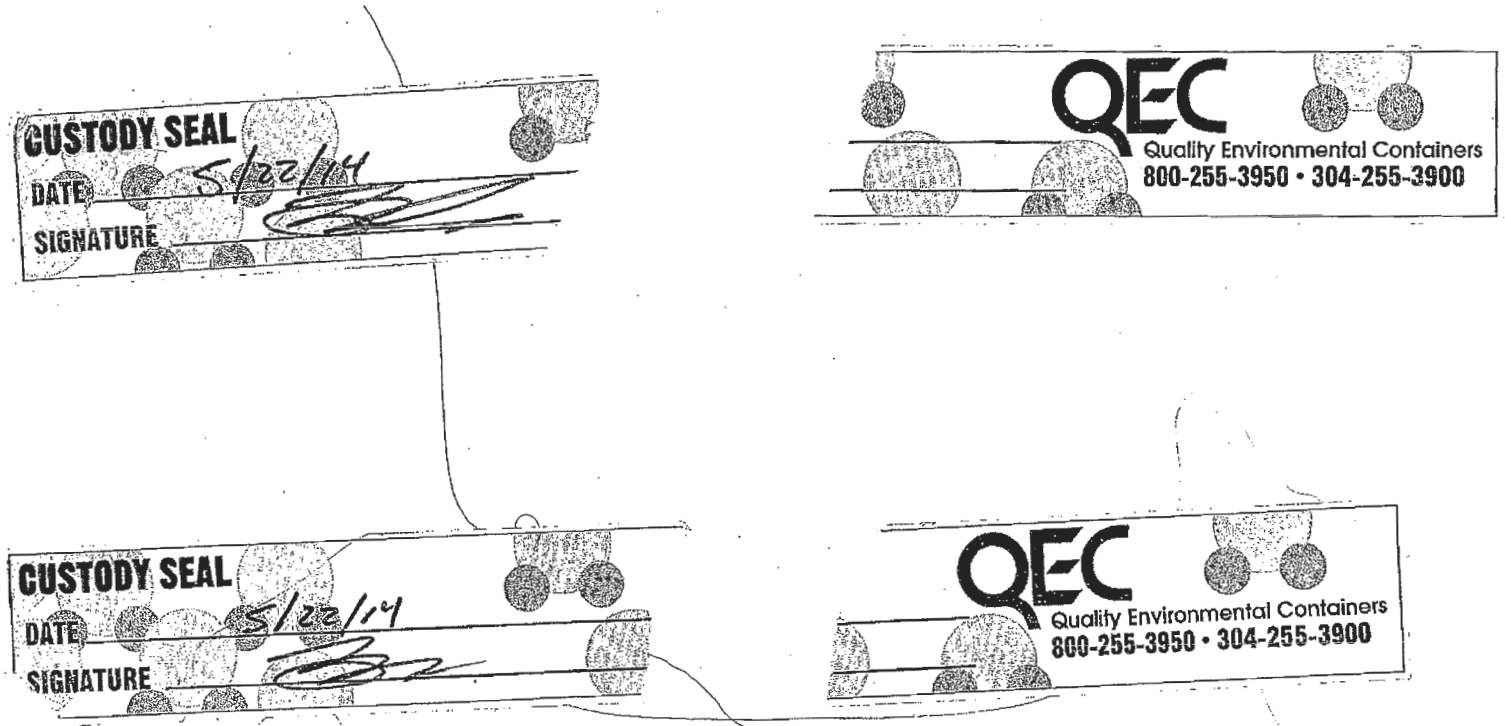
RELINQUISHED BY: (Signature) Ben Camacho DATE/TIME 5/22/14 922 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☒ DHL DISPOSAL @ $5.00 each ☐ Return

4

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 1-2 THERM #: 57
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL #: _____
☐ APC DELIVERY
☒ HAND DELIVERED


CUSTODY SEAL
DATE 5/22/14
SIGNATURE
QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900
CUSTODY SEAL
DATE 5/22/14
SIGNATURE
QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name D. B. Stephens & Assoc, Inc. | Date Received: 5/22/2014

Work Order Number 1405261 | Received by JB

Checklist completed by: [signature] Signature | 5/22/2014 Date | Reviewed by DL Initials | 5/22/2014 Date

Carrier name Hand Delivered

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☑	No ☐	Not Present ☐
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	0.8 °C 1.2
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 7179
	Adjusted? NO		Checked by D
Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted?		Checked by

Any No response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

Page 1 of 1

DHL Analytical, Inc.
Laboratory Review Checklist: Reportable Data

Project Name: TCEQ - Rockwool Belton, TX	**Date:** 6/6/2014
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1405261
Prep Batch Number(s): See Prep Dates Report	**Run Batch:** See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-Custody (C-O-C)					
R1	OI	1) Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				R1-01
		2) Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and Quality Control (QC) Identification**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test Reports**					
		1) Were all samples prepared and analyzed within holding times?	X				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		3) Were calculations checked by a peer or supervisor?	X				
		4) Were all analyte identifications checked by a peer or supervisor?	X				
		5) Were sample detection limits reported for all analytes not detected?	X				
		6) Were all results for soil and sediment samples reported on a dry weight basis?			X		
		7) Were % moisture (or solids) reported for all soil and sediment samples?			X		
		8) Were bulk soils/solids samples for volatile analysis extracted with methanol per EPA Method 5035?			X		
		9) If required for the project, TICs reported?			X		
R4	O	**Surrogate Recovery Data**					
		1) Were surrogates added prior to extraction?			X		
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		1) Were appropriate type(s) of blanks analyzed?	X				
		2) Were blanks analyzed at the appropriate frequency?	X				
		3) Where method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		4) Were blank concentrations < MQL?	X				
R6	OI	**Laboratory Control Samples (LCS):**					
		1) Were all COCs included in the LCS?	X				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		3) Were LCSs analyzed at the required frequency?	X				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		6) Was the LCSD RPD within QC limits (if applicable)?	X				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Data**					
		1) Were the project/method specified analytes included in the MS and MSD?	X				
		2) Were MS/MSD analyzed at the appropriate frequency?	X				
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		4) Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?			X		
		2) Were analytical duplicates analyzed at the appropriate frequency?			X		
		3) Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	X				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		3) Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		3) Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

DHL Analytical, Inc.
Laboratory Review Checklist (continued): Supporting Data

Project Name: TCEQ - Rockwool Belton, TX	**Date:** 6/6/2014
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1405261

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within QC limits?	X				
		2) Were percent RSDs or correlation coefficient criteria met?	X				
		3) Was the number of standards recommended in the method used for all analytes?	X				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		5) Are ICAL data available for all instruments used?	X				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and Continuing calibration Verification (ICCV and CCV) and Continuing Calibration blank (CCB):**					
		1) Was the CCV analyzed at the method-required frequency?	X				
		2) Were percent differences for each analyte within the method-required QC limits?	X				
		3) Was the ICAL curve verified for each analyte?	X				
		4) Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	**Mass Spectral Tuning:**					
		1) Was the appropriate compound for the method used for tuning?	X				
		2) Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal Standards (IS):**					
		1) Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw Data (NELAC Section 5.5.10)**					
		1) Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		2) Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual Column Confirmation**					
		1) Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively Identified Compounds (TICs):**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) Results:**					
		1) Were percent recoveries within method QC limits?	X				
S9	I	**Serial Dilutions, Post Digestion Spikes, and Method of Standard Additions**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	**Method Detection Limit (MDL) Studies**					
		1) Was a MDL study performed for each reported analyte?	X				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency Test Reports:**					
		1) Was the lab's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards Documentation**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/Analyte Identification Procedures**					
		1) Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5 – Appendix C?	X				
		2) Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/Validation Documentation for Methods** (NELAC Chapter 5)					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory Standard Operating Procedures (SOPs):**					
		1) Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Data Package Signature Page – RG-366/TRRP-13

This data package consists of:

This signature page, the laboratory review checklist, and the following reportable data:

- R1 Field chain-of-custody documentation;
- R2 Sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5,
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- R4 Surrogate recovery data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - c) The laboratory's LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a) The amount of analyte measured in the duplicate,
  - b) The calculated RPD, and
  - c) The laboratory's QC limits for analytical duplicates.
- R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;
- R10 Other problems or anomalies.

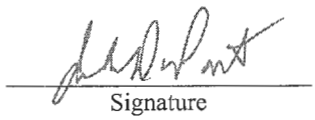
The Exception Report for every "No" or "Not Reviewed (NR)" item in Laboratory Review checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information or data affecting the quality of the data has been knowingly withheld.

This laboratory was last inspected by TCEQ on May 6-10, 2013. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

John DuPont – General Manager

Scott Schroeder – Technical Director



Signature

06/06/14

Date

DHL Analytical, Inc. **Date:** *06-Jun-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Project: TCEQ - Rockwool Belton, TX
Lab Order: 1405261

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Method SW6020A - Metals Analysis

Exception Report R1-01

The samples were received and log-in performed on 5/22/2014. A total of 24 samples were received and analyzed. The samples arrived in good condition and were properly packaged.

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Project: TCEQ - Rockwool Belton, TX
Lab Order: 1405261

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1405261-01	MW-22		05/21/14 09:10 AM	5/22/2014
1405261-02	MW-37-90		05/21/14 09:51 AM	5/22/2014
1405261-03	MW-21		05/21/14 10:20 AM	5/22/2014
1405261-04	MW-38-90		05/21/14 10:44 AM	5/22/2014
1405261-05	MW-35-90		05/21/14 11:15 AM	5/22/2014
1405261-06	MW-10		05/21/14 12:00 PM	5/22/2014
1405261-07	MW-30-90		05/21/14 12:20 PM	5/22/2014
1405261-08	MW-29-90		05/21/14 12:50 PM	5/22/2014
1405261-09	MW-17		05/21/14 01:35 PM	5/22/2014
1405261-10	MW-33-90		05/21/14 02:10 PM	5/22/2014
1405261-11	MW-34-90		05/21/14 02:50 PM	5/22/2014
1405261-12	DUP-1		05/21/14	5/22/2014
1405261-13	DUP-2		05/21/14	5/22/2014
1405261-14	ER-1		05/21/14 05:00 PM	5/22/2014
1405261-15	MW-20		05/21/14 09:26 AM	5/22/2014
1405261-16	MW-11		05/21/14 10:15 AM	5/22/2014
1405261-17	MW-14		05/21/14 10:56 AM	5/22/2014
1405261-18	MW-7		05/21/14 11:54 AM	5/22/2014
1405261-19	MW-19		05/21/14 12:34 PM	5/22/2014
1405261-20	MW-24-90		05/21/14 01:11 PM	5/22/2014
1405261-21	MW-18		05/21/14 01:56 PM	5/22/2014
1405261-22	MW-27-90		05/21/14 03:11 PM	5/22/2014
1405261-23	MW-28-90		05/21/14 02:56 PM	5/22/2014
1405261-24	MW-9		05/21/14 03:41 PM	5/22/2014

Lab Order: 1405261
Client: D. B. Stephens & Assoc, Inc.
Project: TCEQ - Rockwool Belton, TX

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1405261-01A	MW-22	05/21/14 09:10 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-02A	MW-37-90	05/21/14 09:51 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-03A	MW-21	05/21/14 10:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-04A	MW-38-90	05/21/14 10:44 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
	MW-38-90	05/21/14 10:44 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-05A	MW-35-90	05/21/14 11:15 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
	MW-35-90	05/21/14 11:15 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-06A	MW-10	05/21/14 12:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-07A	MW-30-90	05/21/14 12:20 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-08A	MW-29-90	05/21/14 12:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-09A	MW-17	05/21/14 01:35 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-10A	MW-33-90	05/21/14 02:10 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-11A	MW-34-90	05/21/14 02:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-12A	DUP-1	05/21/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
	DUP-1	05/21/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-13A	DUP-2	05/21/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-14A	ER-1	05/21/14 05:00 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-15A	MW-20	05/21/14 09:26 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-16A	MW-11	05/21/14 10:15 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-17A	MW-14	05/21/14 10:56 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/30/14 08:29 AM	63877
1405261-18A	MW-7	05/21/14 11:54 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/30/14 08:29 AM	63877
1405261-19A	MW-19	05/21/14 12:34 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/30/14 08:29 AM	63877
1405261-20A	MW-24-90	05/21/14 01:11 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/30/14 08:29 AM	63877
1405261-21A	MW-18	05/21/14 01:56 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/30/14 08:29 AM	63877
1405261-22A	MW-27-90	05/21/14 03:11 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/30/14 08:29 AM	63877
1405261-23A	MW-28-90	05/21/14 02:56 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/30/14 08:29 AM	63877
1405261-24A	MW-9	05/21/14 03:41 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/30/14 08:29 AM	63877

Lab Order: 1405261
Client: D. B. Stephens & Assoc, Inc.
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1405261-01A	MW-22	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:24 PM	ICP-MS4_140529A
1405261-02A	MW-37-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:25 PM	ICP-MS4_140529A
1405261-03A	MW-21	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:14 PM	ICP-MS4_140529A
1405261-04A	MW-38-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:27 PM	ICP-MS4_140529A
	MW-38-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	10	05/29/14 01:59 PM	ICP-MS4_140529A
1405261-05A	MW-35-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:29 PM	ICP-MS4_140529A
	MW-35-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	10	05/29/14 02:01 PM	ICP-MS4_140529A
1405261-06A	MW-10	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:31 PM	ICP-MS4_140529A
1405261-07A	MW-30-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:33 PM	ICP-MS4_140529A
1405261-08A	MW-29-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:48 PM	ICP-MS4_140529A
1405261-09A	MW-17	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:50 PM	ICP-MS4_140529A
1405261-10A	MW-33-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:52 PM	ICP-MS4_140529A
1405261-11A	MW-34-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:54 PM	ICP-MS4_140529A
1405261-12A	DUP-1	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	10	05/29/14 02:03 PM	ICP-MS4_140529A
	DUP-1	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:56 PM	ICP-MS4_140529A
1405261-13A	DUP-2	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:58 PM	ICP-MS4_140529A
1405261-14A	ER-1	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 01:00 PM	ICP-MS4_140529A
1405261-15A	MW-20	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 01:01 PM	ICP-MS4_140529A
1405261-16A	MW-11	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 01:03 PM	ICP-MS4_140529A
1405261-17A	MW-14	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63877	1	06/02/14 09:20 PM	ICP-MS3_140602B
1405261-18A	MW-7	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63877	1	06/02/14 09:26 PM	ICP-MS3_140602B
1405261-19A	MW-19	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63877	1	06/02/14 09:32 PM	ICP-MS3_140602B
1405261-20A	MW-24-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63877	1	06/02/14 09:38 PM	ICP-MS3_140602B
1405261-21A	MW-18	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63877	1	06/02/14 09:44 PM	ICP-MS3_140602B
1405261-22A	MW-27-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63877	1	06/02/14 09:50 PM	ICP-MS3_140602B
1405261-23A	MW-28-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63877	1	06/02/14 09:56 PM	ICP-MS3_140602B
1405261-24A	MW-9	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63877	1	06/02/14 08:56 PM	ICP-MS3_140602B

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-22
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-01
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 09:10 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00218	0.000800	0.00250	J	mg/L V-RB	1	05/29/14 12:24 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	05/29/14 12:24 PM
Lead	0.000312	0.000300	0.00100	J	mg/L	1	05/29/14 12:24 PM
IS: Bismuth	94.0	0	70-200		%REC	1	05/29/14 12:24 PM
IS: Germanium	96.6	0	70-200		%REC	1	05/29/14 12:24 PM
IS: Indium	92.8	0	70-200		%REC	1	05/29/14 12:24 PM

MKT 6-26-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-37-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-02
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 09:51 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.000875	0.000800	0.00250	J	mg/L U-RB	1	05/29/14 12:25 PM
Arsenic	0.00901	0.00200	0.00500		mg/L	1	05/29/14 12:25 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 12:25 PM
IS: Bismuth	92.3	0	70-200		%REC	1	05/29/14 12:25 PM
IS: Germanium	95.9	0	70-200		%REC	1	05/29/14 12:25 PM
IS: Indium	94.2	0	70-200		%REC	1	05/29/14 12:25 PM

MKT 6-24-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-21
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-03
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 10:20 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.309	0.000800	0.00250		mg/L	1	05/29/14 12:14 PM
Arsenic	0.00596	0.00200	0.00500		mg/L	1	05/29/14 12:14 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 12:14 PM
IS: Bismuth	92.9	0	70-200		%REC	1	05/29/14 12:14 PM
IS: Germanium	95.2	0	70-200		%REC	1	05/29/14 12:14 PM
IS: Indium	93.4	0	70-200		%REC	1	05/29/14 12:14 PM

MK 6-26-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-38-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-04
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 10:44 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	2.21	0.00800	0.0250		mg/L	10	05/29/14 01:59 PM
Arsenic	0.00599	0.00200	0.00500		mg/L	1	05/29/14 12:27 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 12:27 PM
IS: Bismuth	92.7	0	70-200		%REC	1	05/29/14 12:27 PM
IS: Germanium	93.4	0	70-200		%REC	1	05/29/14 12:27 PM
IS: Indium	99.5	0	70-200		%REC	10	05/29/14 01:59 PM

NKT 6-26-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-35-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-05
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 11:15 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.985	0.00800	0.0250		mg/L	10	05/29/14 02:01 PM
Arsenic	0.0943	0.00200	0.00500		mg/L	1	05/29/14 12:29 PM
Lead	0.000506	0.000300	0.00100	J	mg/L	1	05/29/14 12:29 PM
IS: Bismuth	90.1	0	70-200		%REC	1	05/29/14 12:29 PM
IS: Germanium	92.8	0	70-200		%REC	1	05/29/14 12:29 PM
IS: Indium	98.4	0	70-200		%REC	10	05/29/14 02:01 PM

MK7 6-26-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-10
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-06
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 12:00 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	05/29/14 12:31 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	05/29/14 12:31 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 12:31 PM
IS: Bismuth	93.0	0	70-200		%REC	1	05/29/14 12:31 PM
IS: Germanium	94.1	0	70-200		%REC	1	05/29/14 12:31 PM
IS: Indium	92.2	0	70-200		%REC	1	05/29/14 12:31 PM

MK 6-29-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-30-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-07
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 12:20 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00151	0.000800	0.00250	J	mg/L U-RB	1	05/29/14 12:33 PM
Arsenic	0.00205	0.00200	0.00500	J	mg/L	1	05/29/14 12:33 PM
Lead	0.00586	0.000300	0.00100		mg/L	1	05/29/14 12:33 PM
IS: Bismuth	89.1	0	70-200		%REC	1	05/29/14 12:33 PM
IS: Germanium	91.8	0	70-200		%REC	1	05/29/14 12:33 PM
IS: Indium	90.2	0	70-200		%REC	1	05/29/14 12:33 PM

MK7 6-26-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-29-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-08
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 12:50 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0217	0.000800	0.00250		mg/L	1	05/29/14 12:48 PM
Arsenic	0.00275	0.00200	0.00500	J	mg/L	1	05/29/14 12:48 PM
Lead	0.00123	0.000300	0.00100		mg/L	1	05/29/14 12:48 PM
IS: Bismuth	93.8	0	70-200		%REC	1	05/29/14 12:48 PM
IS: Germanium	93.6	0	70-200		%REC	1	05/29/14 12:48 PM
IS: Indium	92.1	0	70-200		%REC	1	05/29/14 12:48 PM

MK 6-26-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-17
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-09
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 01:35 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0427	0.000800	0.00250		mg/L	1	05/29/14 12:50 PM
Arsenic	0.00889	0.00200	0.00500		mg/L	1	05/29/14 12:50 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 12:50 PM
IS: Bismuth	92.9	0	70-200		%REC	1	05/29/14 12:50 PM
IS: Germanium	94.0	0	70-200		%REC	1	05/29/14 12:50 PM
IS: Indium	91.6	0	70-200		%REC	1	05/29/14 12:50 PM

MKT 6-26-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-33-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-10
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 02:10 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.126	0.000800	0.00250		mg/L	1	05/29/14 12:52 PM
Arsenic	0.0296	0.00200	0.00500		mg/L	1	05/29/14 12:52 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 12:52 PM
IS: Bismuth	94.2	0	70-200		%REC	1	05/29/14 12:52 PM
IS: Germanium	95.0	0	70-200		%REC	1	05/29/14 12:52 PM
IS: Indium	93.1	0	70-200		%REC	1	05/29/14 12:52 PM

MK 6-26-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-34-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-11
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 02:50 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.324	0.000800	0.00250		mg/L	1	05/29/14 12:54 PM
Arsenic	0.383	0.00200	0.00500		mg/L	1	05/29/14 12:54 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 12:54 PM
IS: Bismuth	93.1	0	70-200		%REC	1	05/29/14 12:54 PM
IS: Germanium	94.7	0	70-200		%REC	1	05/29/14 12:54 PM
IS: Indium	91.9	0	70-200		%REC	1	05/29/14 12:54 PM

MK7 6-26-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	DUP-1
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-12
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.985	0.00800	0.0250		mg/L	10	05/29/14 02:03 PM
Arsenic	0.0922	0.00200	0.00500		mg/L	1	05/29/14 12:56 PM
Lead	0.000525	0.000300	0.00100	J	mg/L	1	05/29/14 12:56 PM
IS: Bismuth	90.9	0	70-200		%REC	1	05/29/14 12:56 PM
IS: Germanium	92.9	0	70-200		%REC	1	05/29/14 12:56 PM
IS: Indium	97.0	0	70-200		%REC	10	05/29/14 02:03 PM

MH 6-26-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	DUP-2
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-13
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.329	0.000800	0.00250		mg/L	1	05/29/14 12:58 PM
Arsenic	0.377	0.00200	0.00500		mg/L	1	05/29/14 12:58 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 12:58 PM
IS: Bismuth	94.6	0	70-200		%REC	1	05/29/14 12:58 PM
IS: Germanium	94.6	0	70-200		%REC	1	05/29/14 12:58 PM
IS: Indium	92.3	0	70-200		%REC	1	05/29/14 12:58 PM

WK 6-26-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	ER-1
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-14
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 05:00 PM
Lab Order:	1405261	**Matrix:**	EQUIP BLANK

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.000875	0.000800	0.00250	J	mg/L	1	05/29/14 01:00 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	05/29/14 01:00 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 01:00 PM
IS: Bismuth	99.5	0	70-200		%REC	1	05/29/14 01:00 PM
IS: Germanium	98.8	0	70-200		%REC	1	05/29/14 01:00 PM
IS: Indium	98.0	0	70-200		%REC	1	05/29/14 01:00 PM

MKT 6-26-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-20
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-15
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 09:26 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00193	0.000800	0.00250	J	mg/L U-RB	1	05/29/14 01:01 PM
Arsenic	0.00263	0.00200	0.00500	J	mg/L	1	05/29/14 01:01 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 01:01 PM
IS: Bismuth	92.8	0	70-200		%REC	1	05/29/14 01:01 PM
IS: Germanium	95.2	0	70-200		%REC	1	05/29/14 01:01 PM
IS: Indium	92.6	0	70-200		%REC	1	05/29/14 01:01 PM

NKT
6-26-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-11
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-16
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 10:15 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	05/29/14 01:03 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	05/29/14 01:03 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 01:03 PM
IS: Bismuth	92.8	0	70-200		%REC	1	05/29/14 01:03 PM
IS: Germanium	96.0	0	70-200		%REC	1	05/29/14 01:03 PM
IS: Indium	92.9	0	70-200		%REC	1	05/29/14 01:03 PM

MKT
6-26-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-14
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-17
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 10:56 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	06/02/14 09:20 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	06/02/14 09:20 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	06/02/14 09:20 PM
IS: Bismuth	89.0	0	70-200		%REC	1	06/02/14 09:20 PM
IS: Germanium	101	0	70-200		%REC	1	06/02/14 09:20 PM
IS: Indium	95.2	0	70-200		%REC	1	06/02/14 09:20 PM

MK 6-26-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-7
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-18
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 11:54 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00133	0.000800	0.00250	J	mg/L V-RB	1	06/02/14 09:26 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	06/02/14 09:26 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	06/02/14 09:26 PM
IS: Bismuth	84.6	0	70-200		%REC	1	06/02/14 09:26 PM
IS: Germanium	98.5	0	70-200		%REC	1	06/02/14 09:26 PM
IS: Indium	93.2	0	70-200		%REC	1	06/02/14 09:26 PM

MKT 6-26-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-19
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-19
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 12:34 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00121	0.000800	0.00250	J	mg/L V-RB	1	06/02/14 09:32 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	06/02/14 09:32 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	06/02/14 09:32 PM
IS: Bismuth	82.5	0	70-200		%REC	1	06/02/14 09:32 PM
IS: Germanium	97.2	0	70-200		%REC	1	06/02/14 09:32 PM
IS: Indium	91.5	0	70-200		%REC	1	06/02/14 09:32 PM

MET 6-26-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-24-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-20
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 01:11 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0171	0.000800	0.00250		mg/L	1	06/02/14 09:38 PM
Arsenic	0.0122	0.00200	0.00500		mg/L	1	06/02/14 09:38 PM
Lead	0.000779	0.000300	0.00100	J	mg/L	1	06/02/14 09:38 PM
IS: Bismuth	80.1	0	70-200		%REC	1	06/02/14 09:38 PM
IS: Germanium	96.7	0	70-200		%REC	1	06/02/14 09:38 PM
IS: Indium	88.5	0	70-200		%REC	1	06/02/14 09:38 PM

NKT 6-26-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-18
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-21
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 01:56 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00117	0.000800	0.00250	J	mg/L U-RB	1	06/02/14 09:44 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	06/02/14 09:44 PM
Lead	0.000982	0.000300	0.00100	J	mg/L	1	06/02/14 09:44 PM
IS: Bismuth	76.0	0	70-200		%REC	1	06/02/14 09:44 PM
IS: Germanium	91.0	0	70-200		%REC	1	06/02/14 09:44 PM
IS: Indium	85.9	0	70-200		%REC	1	06/02/14 09:44 PM

MK 6-26-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-27-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-22
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 03:11 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0554	0.000800	0.00250		mg/L	1	06/02/14 09:50 PM
Arsenic	0.00302	0.00200	0.00500	J	mg/L	1	06/02/14 09:50 PM
Lead	0.00194	0.000300	0.00100		mg/L	1	06/02/14 09:50 PM
IS: Bismuth	81.8	0	70-200		%REC	1	06/02/14 09:50 PM
IS: Germanium	92.4	0	70-200		%REC	1	06/02/14 09:50 PM
IS: Indium	92.7	0	70-200		%REC	1	06/02/14 09:50 PM

WLC 6-26-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-28-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-23
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 02:56 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0399	0.000800	0.00250		mg/L	1	06/02/14 09:56 PM
Arsenic	0.106	0.00200	0.00500		mg/L	1	06/02/14 09:56 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	06/02/14 09:56 PM
IS: Bismuth	71.2	0	70-200		%REC	1	06/02/14 09:56 PM
IS: Germanium	97.0	0	70-200		%REC	1	06/02/14 09:56 PM
IS: Indium	79.4	0	70-200		%REC	1	06/02/14 09:56 PM

NKT 6-26-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-9
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-24
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 03:41 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.237	0.000800	0.00250		mg/L	1	06/02/14 08:56 PM
Arsenic	0.0951	0.00200	0.00500		mg/L	1	06/02/14 08:56 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	06/02/14 08:56 PM
IS: Bismuth	95.2	0	70-200		%REC	1	06/02/14 08:56 PM
IS: Germanium	107	0	70-200		%REC	1	06/02/14 08:56 PM
IS: Indium	102	0	70-200		%REC	1	06/02/14 08:56 PM

MKT 6-26-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140523A

Sample ID	DCS-63705-1	Batch ID:	63705	TestNo:	SW6020A	Units:	mg/L
SampType:	DCS	Run ID:	ICP-MS3_140523A	Analysis Date:	5/23/2014 12:47:00 PM	Prep Date:	5/22/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.000933	0.00250	0.00100	0	93.3	80	120	0	0	
Arsenic	0.000920	0.00500	0.00100	0	92.0	80	120	0	0	
Lead	0.000948	0.00100	0.00100	0	94.8	80	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140602B

The QC data in batch 63877 applies to the following samples: 1405261-17A, 1405261-18A, 1405261-19A, 1405261-20A, 1405261-21A, 1405261-22A, 1405261-23A, 1405261-24A

Sample ID **MB-63877** Batch ID: **63877** TestNo: **SW6020A** Units: **mg/L**
SampType: **MBLK** Run ID: **ICP-MS3_140602B** Analysis Date: **6/2/2014 8:26:00 PM** Prep Date: **5/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Lead	<0.000300	0.00100								
IS: Bismuth	0.200		0.200		106	70	200			
IS: Germanium	0.200		0.200		112	70	200			
IS: Indium	0.200		0.200		112	70	200			

Sample ID **LCS-63877** Batch ID: **63877** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCS** Run ID: **ICP-MS3_140602B** Analysis Date: **6/2/2014 8:38:00 PM** Prep Date: **5/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.181	0.00250	0.200	0	90.3	80	120			
Arsenic	0.192	0.00500	0.200	0	95.8	80	120			
Lead	0.196	0.00100	0.200	0	98.0	80	120			
IS: Bismuth	0.200		0.200		104	70	200			
IS: Germanium	0.200		0.200		112	70	200			
IS: Indium	0.200		0.200		109	70	200			

Sample ID **LCSD-63877** Batch ID: **63877** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS3_140602B** Analysis Date: **6/2/2014 8:44:00 PM** Prep Date: **5/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.182	0.00250	0.200	0	90.8	80	120	0.552	15	
Arsenic	0.195	0.00500	0.200	0	97.6	80	120	1.86	15	
Lead	0.193	0.00100	0.200	0	96.5	80	120	1.54	15	
IS: Bismuth	0.200		0.200		103	70	200	0	0	
IS: Germanium	0.200		0.200		110	70	200	0	0	
IS: Indium	0.200		0.200		108	70	200	0	0	

Sample ID **1405261-24A SD** Batch ID: **63877** TestNo: **SW6020A** Units: **mg/L**
SampType: **SD** Run ID: **ICP-MS3_140602B** Analysis Date: **6/2/2014 9:02:00 PM** Prep Date: **5/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.229	0.0125	0	0.237				3.44	10	
Arsenic	0.0931	0.0250	0	0.0951				2.17	10	
Lead	<0.00150	0.00500	0	0				0	10	
IS: Bismuth	1.00		0.200		99.0	70	200	0	0	
IS: Germanium	1.00		0.200		107	70	200	0	0	
IS: Indium	1.00		0.200		105	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140602B

Sample ID **1405261-24A PDS**	Batch ID: **63877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **PDS**	Run ID: **ICP-MS3_140602B**	Analysis Date: **6/2/2014 10:03:00 PM**	Prep Date: **5/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.407	0.00250	0.200	0.237	85.1	80	120			
Arsenic	0.303	0.00500	0.200	0.0951	104	80	120			
Lead	0.202	0.00100	0.200	0	101	80	120			
IS: Bismuth	0.200		0.200		76.4	70	200			
IS: Germanium	0.200		0.200		93.1	70	200			
IS: Indium	0.200		0.200		83.6	70	200			

Sample ID **1405261-24A MS**	Batch ID: **63877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MS**	Run ID: **ICP-MS3_140602B**	Analysis Date: **6/2/2014 10:09:00 PM**	Prep Date: **5/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.436	0.00250	0.200	0.237	99.6	80	120			
Arsenic	0.298	0.00500	0.200	0.0951	102	80	120			
Lead	0.197	0.00100	0.200	0	98.6	80	120			
IS: Bismuth	0.200		0.200		77.3	70	200			
IS: Germanium	0.200		0.200		89.4	70	200			
IS: Indium	0.200		0.200		84.5	70	200			

Sample ID **1405261-24A MSD**	Batch ID: **63877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MSD**	Run ID: **ICP-MS3_140602B**	Analysis Date: **6/2/2014 10:15:00 PM**	Prep Date: **5/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.451	0.00250	0.200	0.237	107	80	120	3.43	15	
Arsenic	0.312	0.00500	0.200	0.0951	108	80	120	4.26	15	
Lead	0.202	0.00100	0.200	0	101	80	120	2.35	15	
IS: Bismuth	0.200		0.200		78.4	70	200	0	0	
IS: Germanium	0.200		0.200		97.3	70	200	0	0	
IS: Indium	0.200		0.200		87.3	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140602B

Sample ID ICV1-140602	Batch ID: R73489	TestNo: SW6020A	Units: mg/L
SampType: ICV	Run ID: ICP-MS3_140602B	Analysis Date: 6/2/2014 12:41:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0922	0.00250	0.100	0	92.2	90	110			
Arsenic	0.0966	0.00500	0.100	0	96.6	90	110			
Lead	0.0971	0.00100	0.100	0	97.1	90	110			
IS: Bismuth	0.200		0.200		103	70	200			
IS: Germanium	0.200		0.200		96.8	70	200			
IS: Indium	0.200		0.200		95.9	70	200			

Sample ID ILCVL-140602	Batch ID: R73489	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS3_140602B	Analysis Date: 6/2/2014 12:54:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00179	0.00250	0.00200	0	89.4	70	130			
Arsenic	0.00476	0.00500	0.00500	0	95.2	70	130			
Lead	0.00101	0.00100	0.00100	0	101	70	130			
IS: Bismuth	0.200		0.200		101	70	200			
IS: Germanium	0.200		0.200		99.6	70	200			
IS: Indium	0.200		0.200		95.7	70	200			

Sample ID CCV4-140602	Batch ID: R73489	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS3_140602B	Analysis Date: 6/2/2014 7:31:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.187	0.00250	0.200	0	93.4	90	110			
Arsenic	0.201	0.00500	0.200	0	101	90	110			
Lead	0.202	0.00100	0.200	0	101	90	110			
IS: Bismuth	0.200		0.200		108	70	200			
IS: Germanium	0.200		0.200		115	70	200			
IS: Indium	0.200		0.200		114	70	200			

Sample ID LCVL4-140602	Batch ID: R73489	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS3_140602B	Analysis Date: 6/2/2014 8:07:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00171	0.00250	0.00200	0	85.4	70	130			
Arsenic	0.00485	0.00500	0.00500	0	96.9	70	130			
Lead	0.000977	0.00100	0.00100	0	97.7	70	130			
IS: Bismuth	0.200		0.200		106	70	200			
IS: Germanium	0.200		0.200		112	70	200			
IS: Indium	0.200		0.200		112	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140602B

Sample ID **CCV5-140602**	Batch ID: **R73489**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_140602B**	Analysis Date: **6/2/2014 10:21:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.195	0.00250	0.200	0	97.6	90	110			
Arsenic	0.210	0.00500	0.200	0	105	90	110			
Lead	0.198	0.00100	0.200	0	99.0	90	110			
IS: Bismuth	0.200		0.200		80.0	70	200			
IS: Germanium	0.200		0.200		93.3	70	200			
IS: Indium	0.200		0.200		86.2	70	200			

Sample ID **LCVL5-140602**	Batch ID: **R73489**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140602B**	Analysis Date: **6/2/2014 10:57:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00191	0.00250	0.00200	0	95.4	70	130			
Arsenic	0.00484	0.00500	0.00500	0	96.8	70	130			
Lead	0.000983	0.00100	0.00100	0	98.3	70	130			
IS: Bismuth	0.200		0.200		87.2	70	200			
IS: Germanium	0.200		0.200		98.4	70	200			
IS: Indium	0.200		0.200		92.9	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140522C

Sample ID	DCS-63705-1	Batch ID:	63705	TestNo:	SW6020A	Units:	mg/L
SampType:	DCS	Run ID:	ICP-MS4_140522C	Analysis Date:	5/22/2014 3:16:00 PM	Prep Date:	5/22/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.000949	0.00250	0.00100	0	94.9	80	120	0	0	
Arsenic	0.000937	0.00500	0.00100	0	93.7	80	120	0	0	
Lead	0.00103	0.00100	0.00100	0	103	80	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140529A

The QC data in batch 63830 applies to the following samples: 1405261-01A, 1405261-02A, 1405261-03A, 1405261-04A, 1405261-05A, 1405261-06A, 1405261-07A, 1405261-08A, 1405261-09A, 1405261-10A, 1405261-11A, 1405261-12A, 1405261-13A, 1405261-14A, 1405261-15A, 1405261-16A

Sample ID **MB-63830** Batch ID: **63830** TestNo: **SW6020A** Units: **mg/L**
SampType: **MBLK** Run ID: **ICP-MS4_140529A** Analysis Date: **5/29/2014 12:06:00 PM** Prep Date: **5/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Lead	<0.000300	0.00100								
IS: Bismuth	<0		0.200		98.0	70	200			
IS: Germanium	<0		0.200		98.3	70	200			
IS: Indium	<0		0.200		97.2	70	200			

Sample ID **LCS-63830** Batch ID: **63830** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCS** Run ID: **ICP-MS4_140529A** Analysis Date: **5/29/2014 12:08:00 PM** Prep Date: **5/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.193	0.00250	0.200	0	96.3	80	120			
Arsenic	0.187	0.00500	0.200	0	93.4	80	120			
Lead	0.196	0.00100	0.200	0	98.1	80	120			
IS: Bismuth	<0		0.200		95.0	70	200			
IS: Germanium	<0		0.200		94.6	70	200			
IS: Indium	<0		0.200		91.4	70	200			

Sample ID **LCSD-63830** Batch ID: **63830** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS4_140529A** Analysis Date: **5/29/2014 12:10:00 PM** Prep Date: **5/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.196	0.00250	0.200	0	97.8	80	120	1.56	15	
Arsenic	0.188	0.00500	0.200	0	93.8	80	120	0.339	15	
Lead	0.195	0.00100	0.200	0	97.6	80	120	0.456	15	
IS: Bismuth	<0		0.200		94.5	70	200	0	0	
IS: Germanium	<0		0.200		93.8	70	200	0	0	
IS: Indium	<0		0.200		90.8	70	200	0	0	

Sample ID **1405261-03A SD** Batch ID: **63830** TestNo: **SW6020A** Units: **mg/L**
SampType: **SD** Run ID: **ICP-MS4_140529A** Analysis Date: **5/29/2014 12:16:00 PM** Prep Date: **5/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.292	0.0125	0	0.309				5.83	10	
Arsenic	<0.0100	0.0250	0	0.00596				0	10	
Lead	<0.00150	0.00500	0	0				0	10	
IS: Bismuth	<0		0.200		97.0	70	200	0	0	
IS: Germanium	<0		0.200		98.6	70	200	0	0	
IS: Indium	<0		0.200		95.9	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140529A

Sample ID	1405261-03A PDS	Batch ID:	63830	TestNo:	SW6020A	Units:	mg/L
SampType:	PDS	Run ID:	ICP-MS4_140529A	Analysis Date:	5/29/2014 12:35:00 PM	Prep Date:	5/28/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.480	0.00250	0.200	0.309	85.5	80	120			
Arsenic	0.198	0.00500	0.200	0.00596	95.9	80	120			
Lead	0.206	0.00100	0.200	0	103	80	120			
IS: Bismuth	<0		0.200		92.9	70	200			
IS: Germanium	<0		0.200		92.2	70	200			
IS: Indium	<0		0.200		90.2	70	200			

Sample ID	1405261-03A MS	Batch ID:	63830	TestNo:	SW6020A	Units:	mg/L
SampType:	MS	Run ID:	ICP-MS4_140529A	Analysis Date:	5/29/2014 12:37:00 PM	Prep Date:	5/28/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.505	0.00250	0.200	0.309	97.8	80	120			
Arsenic	0.194	0.00500	0.200	0.00596	94.0	80	120			
Lead	0.196	0.00100	0.200	0	97.9	80	120			
IS: Bismuth	<0		0.200		93.4	70	200			
IS: Germanium	<0		0.200		91.8	70	200			
IS: Indium	<0		0.200		88.7	70	200			

Sample ID	1405261-03A MSD	Batch ID:	63830	TestNo:	SW6020A	Units:	mg/L
SampType:	MSD	Run ID:	ICP-MS4_140529A	Analysis Date:	5/29/2014 12:39:00 PM	Prep Date:	5/28/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.505	0.00250	0.200	0.309	98.0	80	120	0.068	15	
Arsenic	0.195	0.00500	0.200	0.00596	94.3	80	120	0.318	15	
Lead	0.201	0.00100	0.200	0	101	80	120	2.77	15	
IS: Bismuth	<0		0.200		91.4	70	200	0	0	
IS: Germanium	<0		0.200		91.9	70	200	0	0	
IS: Indium	<0		0.200		88.3	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140529A

Sample ID ICV-140529	Batch ID: R73425	TestNo: SW6020A	Units: mg/L
SampType: ICV	Run ID: ICP-MS4_140529A	Analysis Date: 5/29/2014 10:13:00 AM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0919	0.00250	0.100	0	91.9	90	110			
Arsenic	0.0942	0.00500	0.100	0	94.2	90	110			
Lead	0.0999	0.00100	0.100	0	99.9	90	110			
IS: Bismuth	<0		0.200		97.1	70	200			

Sample ID LCVL-140529	Batch ID: R73425	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS4_140529A	Analysis Date: 5/29/2014 10:17:00 AM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00174	0.00250	0.00200	0	87.2	70	130			
Arsenic	0.00466	0.00500	0.00500	0	93.2	70	130			
Lead	0.00105	0.00100	0.00100	0	105	70	130			
IS: Bismuth	<0		0.200		99.6	70	200			

Sample ID CCV3-140529	Batch ID: R73425	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS4_140529A	Analysis Date: 5/29/2014 11:59:00 AM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.195	0.00250	0.200	0	97.3	90	110			
Arsenic	0.191	0.00500	0.200	0	95.7	90	110			
Lead	0.203	0.00100	0.200	0	102	90	110			
IS: Bismuth	<0		0.200		97.3	70	200			
IS: Germanium	<0		0.200		97.5	70	200			
IS: Indium	<0		0.200		94.9	70	200			

Sample ID LCVL3-140529	Batch ID: R73425	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS4_140529A	Analysis Date: 5/29/2014 12:02:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00176	0.00250	0.00200	0	88.1	70	130			
Arsenic	0.00447	0.00500	0.00500	0	89.4	70	130			
Lead	0.000992	0.00100	0.00100	0	99.2	70	130			
IS: Bismuth	<0		0.200		97.2	70	200			
IS: Germanium	<0		0.200		97.5	70	200			
IS: Indium	<0		0.200		95.5	70	200			

Sample ID CCV4-140529	Batch ID: R73425	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS4_140529A	Analysis Date: 5/29/2014 12:40:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.200	0.00250	0.200	0	99.8	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140529A

Sample ID CCV4-140529	Batch ID: R73425	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS4_140529A	Analysis Date: 5/29/2014 12:40:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.192	0.00500	0.200	0	96.2	90	110			
Lead	0.202	0.00100	0.200	0	101	90	110			
IS: Bismuth	<0		0.200		95.5	70	200			
IS: Germanium	<0		0.200		93.0	70	200			
IS: Indium	<0		0.200		90.6	70	200			

Sample ID LCVL4-140529	Batch ID: R73425	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS4_140529A	Analysis Date: 5/29/2014 12:44:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00179	0.00250	0.00200	0	89.4	70	130			
Arsenic	0.00452	0.00500	0.00500	0	90.4	70	130			
Lead	0.000986	0.00100	0.00100	0	98.6	70	130			
IS: Bismuth	<0		0.200		98.2	70	200			
IS: Germanium	<0		0.200		95.9	70	200			
IS: Indium	<0		0.200		94.2	70	200			

Sample ID CCV5-140529	Batch ID: R73425	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS4_140529A	Analysis Date: 5/29/2014 1:07:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.201	0.00250	0.200	0	100	90	110			
Arsenic	0.193	0.00500	0.200	0	96.7	90	110			
Lead	0.199	0.00100	0.200	0	99.5	90	110			
IS: Bismuth	<0		0.200		101	70	200			
IS: Germanium	<0		0.200		99.4	70	200			
IS: Indium	<0		0.200		98.7	70	200			

Sample ID LCVL5-140529	Batch ID: R73425	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS4_140529A	Analysis Date: 5/29/2014 1:11:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00188	0.00250	0.00200	0	93.9	70	130			
Arsenic	0.00462	0.00500	0.00500	0	92.4	70	130			
Lead	0.00107	0.00100	0.00100	0	107	70	130			
IS: Bismuth	<0		0.200		98.4	70	200			
IS: Germanium	<0		0.200		99.8	70	200			
IS: Indium	<0		0.200		98.2	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140529A

Sample ID	CCV6-140529	Batch ID:	R73425	TestNo:	SW6020A	Units:	mg/L
SampType:	CCV	Run ID:	ICP-MS4_140529A	Analysis Date:	5/29/2014 1:51:00 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.203	0.00250	0.200	0	101	90	110			
IS: Indium	<0		0.200		97.8	70	200			

Sample ID	LCVL6-140529	Batch ID:	R73425	TestNo:	SW6020A	Units:	mg/L
SampType:	LCVL	Run ID:	ICP-MS4_140529A	Analysis Date:	5/29/2014 1:55:00 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00174	0.00250	0.00200	0	87.1	70	130			
IS: Indium	<0		0.200		99.2	70	200			

Sample ID	CCV7-140529	Batch ID:	R73425	TestNo:	SW6020A	Units:	mg/L
SampType:	CCV	Run ID:	ICP-MS4_140529A	Analysis Date:	5/29/2014 2:05:00 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.200	0.00250	0.200	0	99.9	90	110			
IS: Indium	<0		0.200		95.9	70	200			

Sample ID	LCVL7-140529	Batch ID:	R73425	TestNo:	SW6020A	Units:	mg/L
SampType:	LCVL	Run ID:	ICP-MS4_140529A	Analysis Date:	5/29/2014 2:09:00 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00170	0.00250	0.00200	0	85.0	70	130			
IS: Indium	<0		0.200		97.3	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

MQL SUMMARY REPORT

TestNo: SW6020A	MDL	MQL
Analyte	**mg/L**	**mg/L**
Antimony	0.000800	0.00250
Arsenic	0.00200	0.00500
Lead	0.000300	0.00100

Qualifiers: MQL -Method Quantitation Limit as defined by TRRP
MDL -Method Detection Limit as defined by TRRP

June 06, 2014

Paul Kirby
D. B. Stephens & Assoc, Inc.
4030 W Braker #325
Austin, Texas 78759
TEL: (512) 821-2765
FAX

Order No.: 1405261

RE: TCEQ - Rockwool Belton, TX

Dear Paul Kirby:

DHL Analytical, Inc. received 24 sample(s) on 5/22/2014 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-14-12

Table of Contents

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 65633

CHAIN-OF-CUSTODY

CLIENT: DBSA
ADDRESS: 4030 W. Braker lane ste 325 Austin TX 78759
PHONE: 512-821-2765 FAX/E-MAIL: wgamblin@dbstephens.com
DATA REPORTED TO: wgamblin@dbstephens.com
ADDITIONAL REPORT COPIES TO: invoice to esmith@dbstephens.com

DATE: 5-21-14 PAGE 1 OF 1
PO #: — DHL WORK ORDER #: 019774 #1405261
PROJECT LOCATION OR NAME: TCEQ - Rockwool Belton TX
CLENT PROJECT #: ES14.AIR6.12 COLLECTOR: B.CAMACHO

Authorize 5% surcharge for TRRP Report? ☐ Yes ☒ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ (METHOD 8021) | TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ | GRO (METHOD 8015) ☐ DRO (METHOD 8105) ☐ | VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ | 8081 PEST ☐ 608 PEST/PCB ☐ 8270 PCB ☐ 8270 PEST ☐ | 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ | 8321 HERB ☐ 8330 EXPL ☐ PERCHLORATE ☐ | METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ | RCRA ☐ TX11 ☐ ☐ | PH ☐ HEX CHROM ☐ ALKALINITY ☐ ☐ | CHLORIDE ☐ ANIONS ☐ | TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ | TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
MW-22	01	5-21-14	0910	W	P, 250mL	1		X		X		X	See work order for detailed list
MW-37-90	02	5-21-14	0951	W	P, 250mL	1		X		X		X	
MW-~~23~~21	03	5-21-14	1020	W	P, 250mL	3		X		X		X	→ MS/MSD
MW-38-90	04	5-21-14	1044	W	P, 250mL	1		X		X		X	
MW-35-90	05	5-21-14	1115	W	P, 250mL	1		X		X		X	
MW-10	06	5-21-14	1200	W	P, 250mL	1		X		X		X	
MW-30-90	07	5-21-14	1220	W	P, 250mL	1		X		X		X	
MW-29-90	08	5-21-14	1250	W	P, 250mL	1		X		X		X	
MW-17	09	5-21-14	1335	W	P, 250mL	1		X		X		X	
MW-33-90	10	5-21-14	1410	W	P, 250mL	1		X		X		X	
MW-34-90	11	5-21-14	1450	W	P, 250mL	1		X		X		X	
Dup-1	12	—	—	W	P, 250mL	1		X		X		X	
Dup-2	13	—	—	W	P, 250mL	1		X		X		X	
ER-1	14	5-21-14	1700	W	P, 250mL	1		X		X		X	
TOTAL						16						16	

RELINQUISHED BY: (Signature) CAMACHO, BEN — DATE/TIME 5/22/14 922 — RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) — DATE/TIME — RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) — DATE/TIME — RECEIVED BY: (Signature)

☒ DHL DISPOSAL @ $5.00 each ☐ Return

3

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 0-8 THERM #: 57
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL #: _____
☐ APC DELIVERY
☒ HAND DELIVERED

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 65634

CHAIN-OF-CUSTODY

CLIENT: DBSA
ADDRESS: 4030 W. Braker lane Ste 325 Austin TX 78759
PHONE: 512-821-2765 FAX/E-MAIL: wgamblin@dbstephens.com
DATA REPORTED TO: wgamblin@dbstephens.com
ADDITIONAL REPORT COPIES TO: invoice to esmith@dbstephens.com

DATE: 5-21-14 PAGE 1 OF 1
PO #: — DHL WORK ORDER #: 019774 1405261
PROJECT LOCATION OR NAME: TCEQ - Rockwool - Belton TX
CLENT PROJECT #: 514.AIRQ.12 COLLECTOR: B. CAMACHO

Authorize 5% surcharge for TRRP Report? ☐ Yes ☒ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ (METHOD 8021) | TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ | GRO (METHOD 8015) ☐ DRO (METHOD 8105) ☐ | VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ | 8081 PEST ☐ 608 PEST/PCB ☐ 8270 PEST ☐ | 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ | 8321 HERB ☐ 8330 EXPL ☐ PERCHLORATE ☐ | METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ ☐ | RCRA ☐ TX11 ☐ | PH ☐ HEX CHROM ☐ ALKALINITY ☐ | CHLORIDE ☐ ANIONS ☐ | TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ | TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
MW-20	15	5-21-14	0926	W	P, 250mL	1		X		X		X	See work worder for detailed list
MW-11	16	5-21-14	~~0945~~ 1015	W	P, 250mL	1		X		X		X	
MW-14	17	5-21-14	1056	W	P, 250mL	1		X		X		X	
MW-7	18	5-21-14	1151	W	P, 250mL	1		X		X		X	
MW-19	19	5-21-14	1234	W	P, 250mL	1		X		X		X	
MW-24-90	20	5-21-14	1311	W	P, 250mL	1		X		X		X	
MW-18	21	5-21-14	1356	W	P, 250mL	1		X		X		X	
MW-27-90	22	5-21-14	1511	W	P, 250mL	1		X		X		X	
MW-28-90	23	5-21-14	1456	W	P, 250mL	1		X		X		X	
MW-9	24	5-21-14	1541	W	P, 250mL	1		X		X		X	
TOTAL												10	

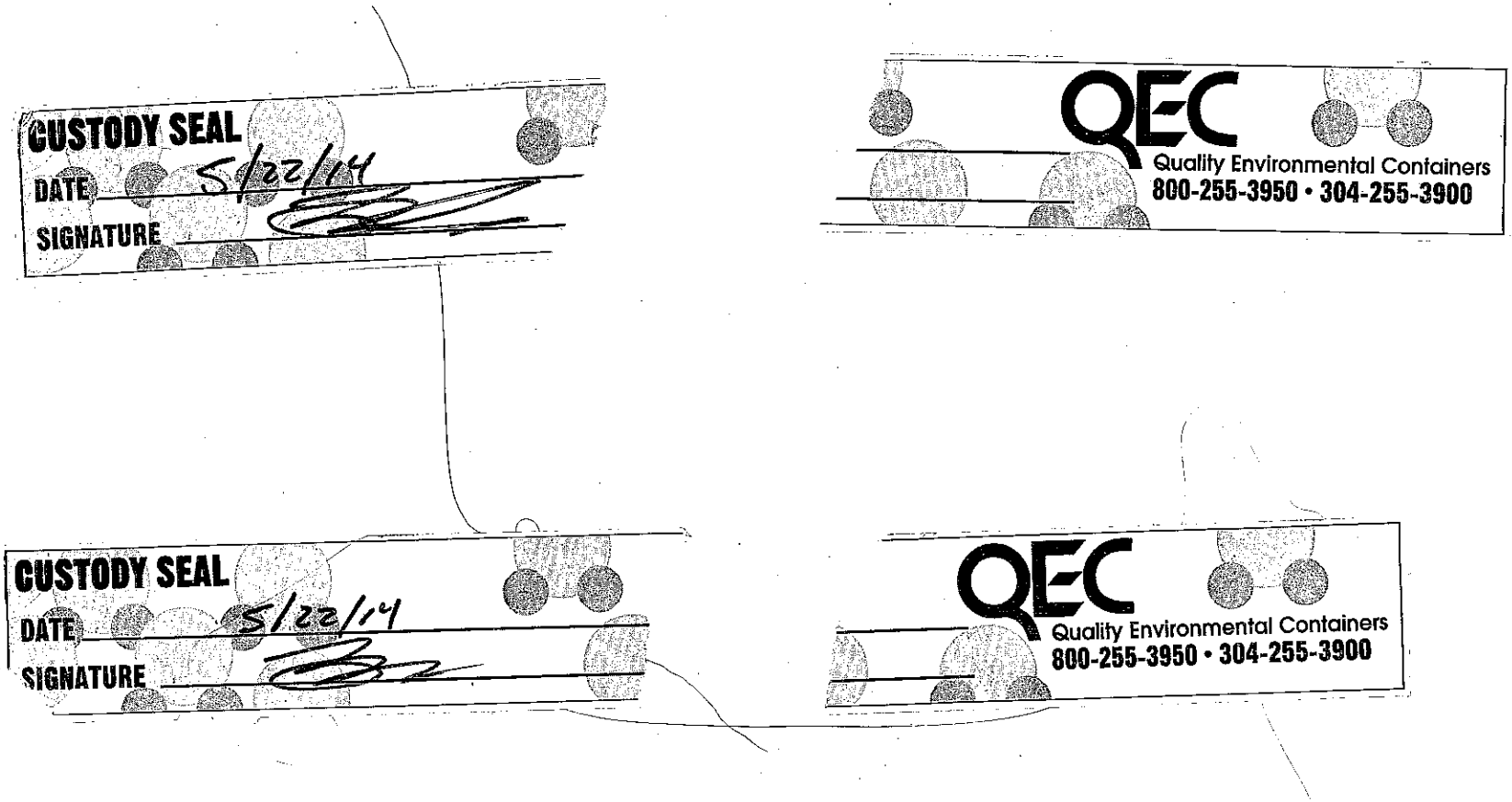
RELINQUISHED BY: (Signature) Ben Camacho DATE/TIME 5/22/14 922 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☒ DHL DISPOSAL @ $5.00 each ☐ Return

4

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 1.2 THERM #: 57
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL #: _____
☐ APC DELIVERY
☐ HAND DELIVERED


CUSTODY SEAL
DATE 5/22/14
SIGNATURE
QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900
CUSTODY SEAL
DATE 5/22/14
SIGNATURE
QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name D. B. Stephens & Assoc, Inc. Date Received: 5/22/2014

Work Order Number 1405261 Received by JB

Checklist completed by: Signature 5/22/2014 Date Reviewed by DL Initials 5/22/2014 Date

Carrier name Hand Delivered

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☑	No ☐	Not Present ☐
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	0.8 °C 1.2
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 7179
	Adjusted? NO		Checked by SO
Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted?		Checked by

Any No response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

Page 1 of 1

DHL Analytical, Inc.
Laboratory Review Checklist: Reportable Data

Project Name: TCEQ - Rockwool Belton, TX	**Date:** 6/6/2014
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1405261
Prep Batch Number(s): See Prep Dates Report	**Run Batch:** See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-Custody (C-O-C)					
R1	OI	**1)** Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	**X**				**R1-01**
		2) Were all departures from standard conditions described in an exception report?			**X**		
R2	OI	**Sample and Quality Control (QC) Identification**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	**X**				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	**X**				
R3	OI	**Test Reports**					
		1) Were all samples prepared and analyzed within holding times?	**X**				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	**X**				
		3) Were calculations checked by a peer or supervisor?	**X**				
		4) Were all analyte identifications checked by a peer or supervisor?	**X**				
		5) Were sample detection limits reported for all analytes not detected?	**X**				
		6) Were all results for soil and sediment samples reported on a dry weight basis?			**X**		
		7) Were % moisture (or solids) reported for all soil and sediment samples?			**X**		
		8) Were bulk soils/solids samples for volatile analysis extracted with methanol per EPA Method 5035?			**X**		
		9) If required for the project, TICs reported?			**X**		
R4	O	**Surrogate Recovery Data**					
		1) Were surrogates added prior to extraction?			**X**		
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?			**X**		
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		1) Were appropriate type(s) of blanks analyzed?	**X**				
		2) Were blanks analyzed at the appropriate frequency?	**X**				
		3) Where method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	**X**				
		4) Were blank concentrations < MQL?	**X**				
R6	OI	**Laboratory Control Samples (LCS):**					
		1) Were all COCs included in the LCS?	**X**				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	**X**				
		3) Were LCSs analyzed at the required frequency?	**X**				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	**X**				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	**X**				
		6) Was the LCSD RPD within QC limits (if applicable)?	**X**				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Data**					
		1) Were the project/method specified analytes included in the MS and MSD?	**X**				
		2) Were MS/MSD analyzed at the appropriate frequency?	**X**				
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	**X**				
		4) Were MS/MSD RPDs within laboratory QC limits?	**X**				
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?			**X**		
		2) Were analytical duplicates analyzed at the appropriate frequency?			**X**		
		3) Were RPDs or relative standard deviations within the laboratory QC limits?			**X**		
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	**X**				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	**X**				
		3) Are unadjusted MQLs and DCSs included in the laboratory data package?	**X**				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?	**X**				
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	**X**				
		3) Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	**X**				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

DHL Analytical, Inc.
Laboratory Review Checklist (continued): Supporting Data

Project Name: TCEQ - Rockwool Belton, TX | **Date:** 6/6/2014

Reviewer Name: Angie O'Donnell | **Laboratory Work Order:** 1405261

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within QC limits?	X				
		2) Were percent RSDs or correlation coefficient criteria met?	X				
		3) Was the number of standards recommended in the method used for all analytes?	X				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		5) Are ICAL data available for all instruments used?	X				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and Continuing calibration Verification (ICCV and CCV) and Continuing Calibration blank (CCB):**					
		1) Was the CCV analyzed at the method-required frequency?	X				
		2) Were percent differences for each analyte within the method-required QC limits?	X				
		3) Was the ICAL curve verified for each analyte?	X				
		4) Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	**Mass Spectral Tuning:**					
		1) Was the appropriate compound for the method used for tuning?	X				
		2) Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal Standards (IS):**					
		1) Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw Data (NELAC Section 5.5.10)**					
		1) Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		2) Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual Column Confirmation**					
		1) Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively Identified Compounds (TICs):**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) Results:**					
		1) Were percent recoveries within method QC limits?	X				
S9	I	**Serial Dilutions, Post Digestion Spikes, and Method of Standard Additions**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	**Method Detection Limit (MDL) Studies**					
		1) Was a MDL study performed for each reported analyte?	X				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency Test Reports:**					
		1) Was the lab's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards Documentation**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/Analyte Identification Procedures**					
		1) Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5 – Appendix C?	X				
		2) Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/Validation Documentation for Methods** (NELAC Chapter 5)					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory Standard Operating Procedures (SOPs):**					
		1) Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Data Package Signature Page – RG-366/TRRP-13

This data package consists of:

This signature page, the laboratory review checklist, and the following reportable data:

R1 Field chain-of-custody documentation;
R2 Sample identification cross-reference;
R3 Test reports (analytical data sheets) for each environmental sample that includes:
  a) Items consistent with NELAC Chapter 5,
  b) dilution factors,
  c) preparation methods,
  d) cleanup methods, and
  e) if required for the project, tentatively identified compounds (TICs).
R4 Surrogate recovery data including:
  a) Calculated recovery (%R), and
  b) The laboratory's surrogate QC limits.
R5 Test reports/summary forms for blank samples;
R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  a) LCS spiking amounts,
  b) Calculated %R for each analyte, and
  c) The laboratory's LCS QC limits.
R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  a) Samples associated with the MS/MSD clearly identified,
  b) MS/MSD spiking amounts,
  c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  d) Calculated %Rs and relative percent differences (RPDs), and
  e) The laboratory's MS/MSD QC limits
R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  a) The amount of analyte measured in the duplicate,
  b) The calculated RPD, and
  c) The laboratory's QC limits for analytical duplicates.
R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;
R10 Other problems or anomalies.

The Exception Report for every "No" or "Not Reviewed (NR)" item in Laboratory Review checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information or data affecting the quality of the data has been knowingly withheld.

This laboratory was last inspected by TCEQ on May 6-10, 2013. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

John DuPont – General Manager

Scott Schroeder – Technical Director

Signature

06/06/14

Date

DHL Analytical, Inc. **Date:** *06-Jun-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Project: TCEQ - Rockwool Belton, TX
Lab Order: 1405261

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Method SW6020A - Metals Analysis

Exception Report R1-01

The samples were received and log-in performed on 5/22/2014. A total of 24 samples were received and analyzed. The samples arrived in good condition and were properly packaged.

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Project: TCEQ - Rockwool Belton, TX
Lab Order: 1405261

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1405261-01	MW-22		05/21/14 09:10 AM	5/22/2014
1405261-02	MW-37-90		05/21/14 09:51 AM	5/22/2014
1405261-03	MW-21		05/21/14 10:20 AM	5/22/2014
1405261-04	MW-38-90		05/21/14 10:44 AM	5/22/2014
1405261-05	MW-35-90		05/21/14 11:15 AM	5/22/2014
1405261-06	MW-10		05/21/14 12:00 PM	5/22/2014
1405261-07	MW-30-90		05/21/14 12:20 PM	5/22/2014
1405261-08	MW-29-90		05/21/14 12:50 PM	5/22/2014
1405261-09	MW-17		05/21/14 01:35 PM	5/22/2014
1405261-10	MW-33-90		05/21/14 02:10 PM	5/22/2014
1405261-11	MW-34-90		05/21/14 02:50 PM	5/22/2014
1405261-12	DUP-1		05/21/14	5/22/2014
1405261-13	DUP-2		05/21/14	5/22/2014
1405261-14	ER-1		05/21/14 05:00 PM	5/22/2014
1405261-15	MW-20		05/21/14 09:26 AM	5/22/2014
1405261-16	MW-11		05/21/14 10:15 AM	5/22/2014
1405261-17	MW-14		05/21/14 10:56 AM	5/22/2014
1405261-18	MW-7		05/21/14 11:54 AM	5/22/2014
1405261-19	MW-19		05/21/14 12:34 PM	5/22/2014
1405261-20	MW-24-90		05/21/14 01:11 PM	5/22/2014
1405261-21	MW-18		05/21/14 01:56 PM	5/22/2014
1405261-22	MW-27-90		05/21/14 03:11 PM	5/22/2014
1405261-23	MW-28-90		05/21/14 02:56 PM	5/22/2014
1405261-24	MW-9		05/21/14 03:41 PM	5/22/2014

Lab Order: 1405261
Client: D. B. Stephens & Assoc, Inc.
Project: TCEQ - Rockwool Belton, TX

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1405261-01A	MW-22	05/21/14 09:10 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-02A	MW-37-90	05/21/14 09:51 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-03A	MW-21	05/21/14 10:20 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-04A	MW-38-90	05/21/14 10:44 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
	MW-38-90	05/21/14 10:44 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-05A	MW-35-90	05/21/14 11:15 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
	MW-35-90	05/21/14 11:15 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-06A	MW-10	05/21/14 12:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-07A	MW-30-90	05/21/14 12:20 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-08A	MW-29-90	05/21/14 12:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-09A	MW-17	05/21/14 01:35 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-10A	MW-33-90	05/21/14 02:10 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-11A	MW-34-90	05/21/14 02:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-12A	DUP-1	05/21/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
	DUP-1	05/21/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-13A	DUP-2	05/21/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-14A	ER-1	05/21/14 05:00 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-15A	MW-20	05/21/14 09:26 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-16A	MW-11	05/21/14 10:15 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/28/14 11:15 AM	63830
1405261-17A	MW-14	05/21/14 10:56 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/30/14 08:29 AM	63877
1405261-18A	MW-7	05/21/14 11:54 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/30/14 08:29 AM	63877
1405261-19A	MW-19	05/21/14 12:34 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/30/14 08:29 AM	63877
1405261-20A	MW-24-90	05/21/14 01:11 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/30/14 08:29 AM	63877
1405261-21A	MW-18	05/21/14 01:56 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/30/14 08:29 AM	63877
1405261-22A	MW-27-90	05/21/14 03:11 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/30/14 08:29 AM	63877
1405261-23A	MW-28-90	05/21/14 02:56 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/30/14 08:29 AM	63877
1405261-24A	MW-9	05/21/14 03:41 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	05/30/14 08:29 AM	63877

Lab Order: 1405261
Client: D. B. Stephens & Assoc, Inc.
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1405261-01A	MW-22	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:24 PM	ICP-MS4_140529A
1405261-02A	MW-37-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:25 PM	ICP-MS4_140529A
1405261-03A	MW-21	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:14 PM	ICP-MS4_140529A
1405261-04A	MW-38-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:27 PM	ICP-MS4_140529A
	MW-38-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	10	05/29/14 01:59 PM	ICP-MS4_140529A
1405261-05A	MW-35-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:29 PM	ICP-MS4_140529A
	MW-35-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	10	05/29/14 02:01 PM	ICP-MS4_140529A
1405261-06A	MW-10	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:31 PM	ICP-MS4_140529A
1405261-07A	MW-30-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:33 PM	ICP-MS4_140529A
1405261-08A	MW-29-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:48 PM	ICP-MS4_140529A
1405261-09A	MW-17	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:50 PM	ICP-MS4_140529A
1405261-10A	MW-33-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:52 PM	ICP-MS4_140529A
1405261-11A	MW-34-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:54 PM	ICP-MS4_140529A
1405261-12A	DUP-1	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	10	05/29/14 02:03 PM	ICP-MS4_140529A
	DUP-1	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:56 PM	ICP-MS4_140529A
1405261-13A	DUP-2	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 12:58 PM	ICP-MS4_140529A
1405261-14A	ER-1	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 01:00 PM	ICP-MS4_140529A
1405261-15A	MW-20	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 01:01 PM	ICP-MS4_140529A
1405261-16A	MW-11	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63830	1	05/29/14 01:03 PM	ICP-MS4_140529A
1405261-17A	MW-14	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63877	1	06/02/14 09:20 PM	ICP-MS3_140602B
1405261-18A	MW-7	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63877	1	06/02/14 09:26 PM	ICP-MS3_140602B
1405261-19A	MW-19	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63877	1	06/02/14 09:32 PM	ICP-MS3_140602B
1405261-20A	MW-24-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63877	1	06/02/14 09:38 PM	ICP-MS3_140602B
1405261-21A	MW-18	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63877	1	06/02/14 09:44 PM	ICP-MS3_140602B
1405261-22A	MW-27-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63877	1	06/02/14 09:50 PM	ICP-MS3_140602B
1405261-23A	MW-28-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63877	1	06/02/14 09:56 PM	ICP-MS3_140602B
1405261-24A	MW-9	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	63877	1	06/02/14 08:56 PM	ICP-MS3_140602B

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-22
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-01
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 09:10 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00218	0.000800	0.00250	J	mg/L	1	05/29/14 12:24 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	05/29/14 12:24 PM
Lead	0.000312	0.000300	0.00100	J	mg/L	1	05/29/14 12:24 PM
IS: Bismuth	94.0	0	70-200		%REC	1	05/29/14 12:24 PM
IS: Germanium	96.6	0	70-200		%REC	1	05/29/14 12:24 PM
IS: Indium	92.8	0	70-200		%REC	1	05/29/14 12:24 PM

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-37-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-02
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 09:51 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.000875	0.000800	0.00250	J	mg/L	1	05/29/14 12:25 PM
Arsenic	0.00901	0.00200	0.00500		mg/L	1	05/29/14 12:25 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 12:25 PM
IS: Bismuth	92.3	0	70-200		%REC	1	05/29/14 12:25 PM
IS: Germanium	95.9	0	70-200		%REC	1	05/29/14 12:25 PM
IS: Indium	94.2	0	70-200		%REC	1	05/29/14 12:25 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-21
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-03
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 10:20 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.309	0.000800	0.00250		mg/L	1	05/29/14 12:14 PM
Arsenic	0.00596	0.00200	0.00500		mg/L	1	05/29/14 12:14 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 12:14 PM
IS: Bismuth	92.9	0	70-200		%REC	1	05/29/14 12:14 PM
IS: Germanium	95.2	0	70-200		%REC	1	05/29/14 12:14 PM
IS: Indium	93.4	0	70-200		%REC	1	05/29/14 12:14 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-38-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-04
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 10:44 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	2.21	0.00800	0.0250		mg/L	10	05/29/14 01:59 PM
Arsenic	0.00599	0.00200	0.00500		mg/L	1	05/29/14 12:27 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 12:27 PM
IS: Bismuth	92.7	0	70-200		%REC	1	05/29/14 12:27 PM
IS: Germanium	93.4	0	70-200		%REC	1	05/29/14 12:27 PM
IS: Indium	99.5	0	70-200		%REC	10	05/29/14 01:59 PM

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-35-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-05
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 11:15 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.985	0.00800	0.0250		mg/L	10	05/29/14 02:01 PM
Arsenic	0.0943	0.00200	0.00500		mg/L	1	05/29/14 12:29 PM
Lead	0.000506	0.000300	0.00100	J	mg/L	1	05/29/14 12:29 PM
IS: Bismuth	90.1	0	70-200		%REC	1	05/29/14 12:29 PM
IS: Germanium	92.8	0	70-200		%REC	1	05/29/14 12:29 PM
IS: Indium	98.4	0	70-200		%REC	10	05/29/14 02:01 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-10
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-06
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 12:00 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	05/29/14 12:31 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	05/29/14 12:31 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 12:31 PM
IS: Bismuth	93.0	0	70-200		%REC	1	05/29/14 12:31 PM
IS: Germanium	94.1	0	70-200		%REC	1	05/29/14 12:31 PM
IS: Indium	92.2	0	70-200		%REC	1	05/29/14 12:31 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-30-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-07
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 12:20 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00151	0.000800	0.00250	J	mg/L	1	05/29/14 12:33 PM
Arsenic	0.00205	0.00200	0.00500	J	mg/L	1	05/29/14 12:33 PM
Lead	0.00586	0.000300	0.00100		mg/L	1	05/29/14 12:33 PM
IS: Bismuth	89.1	0	70-200		%REC	1	05/29/14 12:33 PM
IS: Germanium	91.8	0	70-200		%REC	1	05/29/14 12:33 PM
IS: Indium	90.2	0	70-200		%REC	1	05/29/14 12:33 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-29-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-08
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 12:50 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0217	0.000800	0.00250		mg/L	1	05/29/14 12:48 PM
Arsenic	0.00275	0.00200	0.00500	J	mg/L	1	05/29/14 12:48 PM
Lead	0.00123	0.000300	0.00100		mg/L	1	05/29/14 12:48 PM
IS: Bismuth	93.8	0	70-200		%REC	1	05/29/14 12:48 PM
IS: Germanium	93.6	0	70-200		%REC	1	05/29/14 12:48 PM
IS: Indium	92.1	0	70-200		%REC	1	05/29/14 12:48 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-17
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-09
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 01:35 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0427	0.000800	0.00250		mg/L	1	05/29/14 12:50 PM
Arsenic	0.00889	0.00200	0.00500		mg/L	1	05/29/14 12:50 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 12:50 PM
IS: Bismuth	92.9	0	70-200		%REC	1	05/29/14 12:50 PM
IS: Germanium	94.0	0	70-200		%REC	1	05/29/14 12:50 PM
IS: Indium	91.6	0	70-200		%REC	1	05/29/14 12:50 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-33-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-10
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 02:10 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.126	0.000800	0.00250		mg/L	1	05/29/14 12:52 PM
Arsenic	0.0296	0.00200	0.00500		mg/L	1	05/29/14 12:52 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 12:52 PM
IS: Bismuth	94.2	0	70-200		%REC	1	05/29/14 12:52 PM
IS: Germanium	95.0	0	70-200		%REC	1	05/29/14 12:52 PM
IS: Indium	93.1	0	70-200		%REC	1	05/29/14 12:52 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-34-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-11
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 02:50 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.324	0.000800	0.00250		mg/L	1	05/29/14 12:54 PM
Arsenic	0.383	0.00200	0.00500		mg/L	1	05/29/14 12:54 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 12:54 PM
IS: Bismuth	93.1	0	70-200		%REC	1	05/29/14 12:54 PM
IS: Germanium	94.7	0	70-200		%REC	1	05/29/14 12:54 PM
IS: Indium	91.9	0	70-200		%REC	1	05/29/14 12:54 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	DUP-1
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-12
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.985	0.00800	0.0250		mg/L	10	05/29/14 02:03 PM
Arsenic	0.0922	0.00200	0.00500		mg/L	1	05/29/14 12:56 PM
Lead	0.000525	0.000300	0.00100	J	mg/L	1	05/29/14 12:56 PM
IS: Bismuth	90.9	0	70-200		%REC	1	05/29/14 12:56 PM
IS: Germanium	92.9	0	70-200		%REC	1	05/29/14 12:56 PM
IS: Indium	97.0	0	70-200		%REC	10	05/29/14 02:03 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	DUP-2
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-13
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.329	0.000800	0.00250		mg/L	1	05/29/14 12:58 PM
Arsenic	0.377	0.00200	0.00500		mg/L	1	05/29/14 12:58 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 12:58 PM
IS: Bismuth	94.6	0	70-200		%REC	1	05/29/14 12:58 PM
IS: Germanium	94.6	0	70-200		%REC	1	05/29/14 12:58 PM
IS: Indium	92.3	0	70-200		%REC	1	05/29/14 12:58 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	ER-1
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-14
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 05:00 PM
Lab Order:	1405261	**Matrix:**	EQUIP BLANK

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.000875	0.000800	0.00250	J	mg/L	1	05/29/14 01:00 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	05/29/14 01:00 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 01:00 PM
IS: Bismuth	99.5	0	70-200		%REC	1	05/29/14 01:00 PM
IS: Germanium	98.8	0	70-200		%REC	1	05/29/14 01:00 PM
IS: Indium	98.0	0	70-200		%REC	1	05/29/14 01:00 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-20
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-15
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 09:26 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00193	0.000800	0.00250	J	mg/L	1	05/29/14 01:01 PM
Arsenic	0.00263	0.00200	0.00500	J	mg/L	1	05/29/14 01:01 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 01:01 PM
IS: Bismuth	92.8	0	70-200		%REC	1	05/29/14 01:01 PM
IS: Germanium	95.2	0	70-200		%REC	1	05/29/14 01:01 PM
IS: Indium	92.6	0	70-200		%REC	1	05/29/14 01:01 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-11
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-16
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 10:15 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	05/29/14 01:03 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	05/29/14 01:03 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	05/29/14 01:03 PM
IS: Bismuth	92.8	0	70-200		%REC	1	05/29/14 01:03 PM
IS: Germanium	96.0	0	70-200		%REC	1	05/29/14 01:03 PM
IS: Indium	92.9	0	70-200		%REC	1	05/29/14 01:03 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-14
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-17
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 10:56 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	06/02/14 09:20 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	06/02/14 09:20 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	06/02/14 09:20 PM
IS: Bismuth	89.0	0	70-200		%REC	1	06/02/14 09:20 PM
IS: Germanium	101	0	70-200		%REC	1	06/02/14 09:20 PM
IS: Indium	95.2	0	70-200		%REC	1	06/02/14 09:20 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-7
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-18
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 11:54 AM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00133	0.000800	0.00250	J	mg/L	1	06/02/14 09:26 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	06/02/14 09:26 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	06/02/14 09:26 PM
IS: Bismuth	84.6	0	70-200		%REC	1	06/02/14 09:26 PM
IS: Germanium	98.5	0	70-200		%REC	1	06/02/14 09:26 PM
IS: Indium	93.2	0	70-200		%REC	1	06/02/14 09:26 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-19
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-19
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 12:34 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00121	0.000800	0.00250	J	mg/L	1	06/02/14 09:32 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	06/02/14 09:32 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	06/02/14 09:32 PM
IS: Bismuth	82.5	0	70-200		%REC	1	06/02/14 09:32 PM
IS: Germanium	97.2	0	70-200		%REC	1	06/02/14 09:32 PM
IS: Indium	91.5	0	70-200		%REC	1	06/02/14 09:32 PM

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-24-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-20
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 01:11 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0171	0.000800	0.00250		mg/L	1	06/02/14 09:38 PM
Arsenic	0.0122	0.00200	0.00500		mg/L	1	06/02/14 09:38 PM
Lead	0.000779	0.000300	0.00100	J	mg/L	1	06/02/14 09:38 PM
IS: Bismuth	80.1	0	70-200		%REC	1	06/02/14 09:38 PM
IS: Germanium	96.7	0	70-200		%REC	1	06/02/14 09:38 PM
IS: Indium	88.5	0	70-200		%REC	1	06/02/14 09:38 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-18
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-21
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 01:56 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.00117	0.000800	0.00250	J	mg/L	1	06/02/14 09:44 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	06/02/14 09:44 PM
Lead	0.000982	0.000300	0.00100	J	mg/L	1	06/02/14 09:44 PM
IS: Bismuth	76.0	0	70-200		%REC	1	06/02/14 09:44 PM
IS: Germanium	91.0	0	70-200		%REC	1	06/02/14 09:44 PM
IS: Indium	85.9	0	70-200		%REC	1	06/02/14 09:44 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-27-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-22
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 03:11 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0554	0.000800	0.00250		mg/L	1	06/02/14 09:50 PM
Arsenic	0.00302	0.00200	0.00500	J	mg/L	1	06/02/14 09:50 PM
Lead	0.00194	0.000300	0.00100		mg/L	1	06/02/14 09:50 PM
IS: Bismuth	81.8	0	70-200		%REC	1	06/02/14 09:50 PM
IS: Germanium	92.4	0	70-200		%REC	1	06/02/14 09:50 PM
IS: Indium	92.7	0	70-200		%REC	1	06/02/14 09:50 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-28-90
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-23
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 02:56 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.0399	0.000800	0.00250		mg/L	1	06/02/14 09:56 PM
Arsenic	0.106	0.00200	0.00500		mg/L	1	06/02/14 09:56 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	06/02/14 09:56 PM
IS: Bismuth	71.2	0	70-200		%REC	1	06/02/14 09:56 PM
IS: Germanium	97.0	0	70-200		%REC	1	06/02/14 09:56 PM
IS: Indium	79.4	0	70-200		%REC	1	06/02/14 09:56 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-9
Project:	TCEQ - Rockwool Belton, TX	**Lab ID:**	1405261-24
Project No:	ES14.AIR0.12	**Collection Date:**	05/21/14 03:41 PM
Lab Order:	1405261	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **SW**
Antimony	0.237	0.000800	0.00250		mg/L	1	06/02/14 08:56 PM
Arsenic	0.0951	0.00200	0.00500		mg/L	1	06/02/14 08:56 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	06/02/14 08:56 PM
IS: Bismuth	95.2	0	70-200		%REC	1	06/02/14 08:56 PM
IS: Germanium	107	0	70-200		%REC	1	06/02/14 08:56 PM
IS: Indium	102	0	70-200		%REC	1	06/02/14 08:56 PM

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140523A

Sample ID **DCS-63705-1** Batch ID: **63705** TestNo: **SW6020A** Units: **mg/L**
SampType: **DCS** Run ID: **ICP-MS3_140523A** Analysis Date: **5/23/2014 12:47:00 PM** Prep Date: **5/22/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.000933	0.00250	0.00100	0	93.3	80	120	0	0	
Arsenic	0.000920	0.00500	0.00100	0	92.0	80	120	0	0	
Lead	0.000948	0.00100	0.00100	0	94.8	80	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140602B

The QC data in batch 63877 applies to the following samples: 1405261-17A, 1405261-18A, 1405261-19A, 1405261-20A, 1405261-21A, 1405261-22A, 1405261-23A, 1405261-24A

Sample ID **MB-63877**	Batch ID: **63877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MBLK**	Run ID: **ICP-MS3_140602B**	Analysis Date: **6/2/2014 8:26:00 PM**	Prep Date: **5/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Lead	<0.000300	0.00100								
IS: Bismuth	0.200		0.200		106	70	200			
IS: Germanium	0.200		0.200		112	70	200			
IS: Indium	0.200		0.200		112	70	200			

Sample ID **LCS-63877**	Batch ID: **63877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCS**	Run ID: **ICP-MS3_140602B**	Analysis Date: **6/2/2014 8:38:00 PM**	Prep Date: **5/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.181	0.00250	0.200	0	90.3	80	120			
Arsenic	0.192	0.00500	0.200	0	95.8	80	120			
Lead	0.196	0.00100	0.200	0	98.0	80	120			
IS: Bismuth	0.200		0.200		104	70	200			
IS: Germanium	0.200		0.200		112	70	200			
IS: Indium	0.200		0.200		109	70	200			

Sample ID **LCSD-63877**	Batch ID: **63877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCSD**	Run ID: **ICP-MS3_140602B**	Analysis Date: **6/2/2014 8:44:00 PM**	Prep Date: **5/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.182	0.00250	0.200	0	90.8	80	120	0.552	15	
Arsenic	0.195	0.00500	0.200	0	97.6	80	120	1.86	15	
Lead	0.193	0.00100	0.200	0	96.5	80	120	1.54	15	
IS: Bismuth	0.200		0.200		103	70	200	0	0	
IS: Germanium	0.200		0.200		110	70	200	0	0	
IS: Indium	0.200		0.200		108	70	200	0	0	

Sample ID **1405261-24A SD**	Batch ID: **63877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **SD**	Run ID: **ICP-MS3_140602B**	Analysis Date: **6/2/2014 9:02:00 PM**	Prep Date: **5/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.229	0.0125	0	0.237				3.44	10	
Arsenic	0.0931	0.0250	0	0.0951				2.17	10	
Lead	<0.00150	0.00500	0	0				0	10	
IS: Bismuth	1.00		0.200		99.0	70	200	0	0	
IS: Germanium	1.00		0.200		107	70	200	0	0	
IS: Indium	1.00		0.200		105	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140602B

Sample ID **1405261-24A PDS**	Batch ID: **63877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **PDS**	Run ID: **ICP-MS3_140602B**	Analysis Date: **6/2/2014 10:03:00 PM**	Prep Date: **5/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.407	0.00250	0.200	0.237	85.1	80	120			
Arsenic	0.303	0.00500	0.200	0.0951	104	80	120			
Lead	0.202	0.00100	0.200	0	101	80	120			
IS: Bismuth	0.200		0.200		76.4	70	200			
IS: Germanium	0.200		0.200		93.1	70	200			
IS: Indium	0.200		0.200		83.6	70	200			

Sample ID **1405261-24A MS**	Batch ID: **63877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MS**	Run ID: **ICP-MS3_140602B**	Analysis Date: **6/2/2014 10:09:00 PM**	Prep Date: **5/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.436	0.00250	0.200	0.237	99.6	80	120			
Arsenic	0.298	0.00500	0.200	0.0951	102	80	120			
Lead	0.197	0.00100	0.200	0	98.6	80	120			
IS: Bismuth	0.200		0.200		77.3	70	200			
IS: Germanium	0.200		0.200		89.4	70	200			
IS: Indium	0.200		0.200		84.5	70	200			

Sample ID **1405261-24A MSD**	Batch ID: **63877**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MSD**	Run ID: **ICP-MS3_140602B**	Analysis Date: **6/2/2014 10:15:00 PM**	Prep Date: **5/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.451	0.00250	0.200	0.237	107	80	120	3.43	15	
Arsenic	0.312	0.00500	0.200	0.0951	108	80	120	4.26	15	
Lead	0.202	0.00100	0.200	0	101	80	120	2.35	15	
IS: Bismuth	0.200		0.200		78.4	70	200	0	0	
IS: Germanium	0.200		0.200		97.3	70	200	0	0	
IS: Indium	0.200		0.200		87.3	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140602B

Sample ID **ICV1-140602**	Batch ID: **R73489**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_140602B**	Analysis Date: **6/2/2014 12:41:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0922	0.00250	0.100	0	92.2	90	110			
Arsenic	0.0966	0.00500	0.100	0	96.6	90	110			
Lead	0.0971	0.00100	0.100	0	97.1	90	110			
IS: Bismuth	0.200		0.200		103	70	200			
IS: Germanium	0.200		0.200		96.8	70	200			
IS: Indium	0.200		0.200		95.9	70	200			

Sample ID **ILCVL-140602**	Batch ID: **R73489**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140602B**	Analysis Date: **6/2/2014 12:54:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00179	0.00250	0.00200	0	89.4	70	130			
Arsenic	0.00476	0.00500	0.00500	0	95.2	70	130			
Lead	0.00101	0.00100	0.00100	0	101	70	130			
IS: Bismuth	0.200		0.200		101	70	200			
IS: Germanium	0.200		0.200		99.6	70	200			
IS: Indium	0.200		0.200		95.7	70	200			

Sample ID **CCV4-140602**	Batch ID: **R73489**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_140602B**	Analysis Date: **6/2/2014 7:31:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.187	0.00250	0.200	0	93.4	90	110			
Arsenic	0.201	0.00500	0.200	0	101	90	110			
Lead	0.202	0.00100	0.200	0	101	90	110			
IS: Bismuth	0.200		0.200		108	70	200			
IS: Germanium	0.200		0.200		115	70	200			
IS: Indium	0.200		0.200		114	70	200			

Sample ID **LCVL4-140602**	Batch ID: **R73489**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140602B**	Analysis Date: **6/2/2014 8:07:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00171	0.00250	0.00200	0	85.4	70	130			
Arsenic	0.00485	0.00500	0.00500	0	96.9	70	130			
Lead	0.000977	0.00100	0.00100	0	97.7	70	130			
IS: Bismuth	0.200		0.200		106	70	200			
IS: Germanium	0.200		0.200		112	70	200			
IS: Indium	0.200		0.200		112	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140602B

Sample ID **CCV5-140602**	Batch ID: **R73489**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_140602B**	Analysis Date: **6/2/2014 10:21:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.195	0.00250	0.200	0	97.6	90	110			
Arsenic	0.210	0.00500	0.200	0	105	90	110			
Lead	0.198	0.00100	0.200	0	99.0	90	110			
IS: Bismuth	0.200		0.200		80.0	70	200			
IS: Germanium	0.200		0.200		93.3	70	200			
IS: Indium	0.200		0.200		86.2	70	200			

Sample ID **LCVL5-140602**	Batch ID: **R73489**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140602B**	Analysis Date: **6/2/2014 10:57:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00191	0.00250	0.00200	0	95.4	70	130			
Arsenic	0.00484	0.00500	0.00500	0	96.8	70	130			
Lead	0.000983	0.00100	0.00100	0	98.3	70	130			
IS: Bismuth	0.200		0.200		87.2	70	200			
IS: Germanium	0.200		0.200		98.4	70	200			
IS: Indium	0.200		0.200		92.9	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: **ICP-MS4_140522C**

Sample ID	**DCS-63705-1**	Batch ID:	**63705**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**DCS**	Run ID:	**ICP-MS4_140522C**	Analysis Date:	**5/22/2014 3:16:00 PM**	Prep Date:	**5/22/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.000949	0.00250	0.00100	0	94.9	80	120	0	0	
Arsenic	0.000937	0.00500	0.00100	0	93.7	80	120	0	0	
Lead	0.00103	0.00100	0.00100	0	103	80	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140529A

The QC data in batch 63830 applies to the following samples: 1405261-01A, 1405261-02A, 1405261-03A, 1405261-04A, 1405261-05A, 1405261-06A, 1405261-07A, 1405261-08A, 1405261-09A, 1405261-10A, 1405261-11A, 1405261-12A, 1405261-13A, 1405261-14A, 1405261-15A, 1405261-16A

Sample ID **MB-63830** Batch ID: **63830** TestNo: **SW6020A** Units: **mg/L**
SampType: **MBLK** Run ID: **ICP-MS4_140529A** Analysis Date: **5/29/2014 12:06:00 PM** Prep Date: **5/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Lead	<0.000300	0.00100								
IS: Bismuth	<0		0.200		98.0	70	200			
IS: Germanium	<0		0.200		98.3	70	200			
IS: Indium	<0		0.200		97.2	70	200			

Sample ID **LCS-63830** Batch ID: **63830** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCS** Run ID: **ICP-MS4_140529A** Analysis Date: **5/29/2014 12:08:00 PM** Prep Date: **5/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.193	0.00250	0.200	0	96.3	80	120			
Arsenic	0.187	0.00500	0.200	0	93.4	80	120			
Lead	0.196	0.00100	0.200	0	98.1	80	120			
IS: Bismuth	<0		0.200		95.0	70	200			
IS: Germanium	<0		0.200		94.6	70	200			
IS: Indium	<0		0.200		91.4	70	200			

Sample ID **LCSD-63830** Batch ID: **63830** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS4_140529A** Analysis Date: **5/29/2014 12:10:00 PM** Prep Date: **5/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.196	0.00250	0.200	0	97.8	80	120	1.56	15	
Arsenic	0.188	0.00500	0.200	0	93.8	80	120	0.339	15	
Lead	0.195	0.00100	0.200	0	97.6	80	120	0.456	15	
IS: Bismuth	<0		0.200		94.5	70	200	0	0	
IS: Germanium	<0		0.200		93.8	70	200	0	0	
IS: Indium	<0		0.200		90.8	70	200	0	0	

Sample ID **1405261-03A SD** Batch ID: **63830** TestNo: **SW6020A** Units: **mg/L**
SampType: **SD** Run ID: **ICP-MS4_140529A** Analysis Date: **5/29/2014 12:16:00 PM** Prep Date: **5/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.292	0.0125	0	0.309				5.83	10	
Arsenic	<0.0100	0.0250	0	0.00596				0	10	
Lead	<0.00150	0.00500	0	0				0	10	
IS: Bismuth	<0		0.200		97.0	70	200	0	0	
IS: Germanium	<0		0.200		98.6	70	200	0	0	
IS: Indium	<0		0.200		95.9	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140529A

Sample ID **1405261-03A PDS**	Batch ID: **63830**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **PDS**	Run ID: **ICP-MS4_140529A**	Analysis Date: **5/29/2014 12:35:00 PM**	Prep Date: **5/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.480	0.00250	0.200	0.309	85.5	80	120			
Arsenic	0.198	0.00500	0.200	0.00596	95.9	80	120			
Lead	0.206	0.00100	0.200	0	103	80	120			
IS: Bismuth	<0		0.200		92.9	70	200			
IS: Germanium	<0		0.200		92.2	70	200			
IS: Indium	<0		0.200		90.2	70	200			

Sample ID **1405261-03A MS**	Batch ID: **63830**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MS**	Run ID: **ICP-MS4_140529A**	Analysis Date: **5/29/2014 12:37:00 PM**	Prep Date: **5/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.505	0.00250	0.200	0.309	97.8	80	120			
Arsenic	0.194	0.00500	0.200	0.00596	94.0	80	120			
Lead	0.196	0.00100	0.200	0	97.9	80	120			
IS: Bismuth	<0		0.200		93.4	70	200			
IS: Germanium	<0		0.200		91.8	70	200			
IS: Indium	<0		0.200		88.7	70	200			

Sample ID **1405261-03A MSD**	Batch ID: **63830**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MSD**	Run ID: **ICP-MS4_140529A**	Analysis Date: **5/29/2014 12:39:00 PM**	Prep Date: **5/28/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.505	0.00250	0.200	0.309	98.0	80	120	0.068	15	
Arsenic	0.195	0.00500	0.200	0.00596	94.3	80	120	0.318	15	
Lead	0.201	0.00100	0.200	0	101	80	120	2.77	15	
IS: Bismuth	<0		0.200		91.4	70	200	0	0	
IS: Germanium	<0		0.200		91.9	70	200	0	0	
IS: Indium	<0		0.200		88.3	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140529A

Sample ID **ICV-140529**	Batch ID: **R73425**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS4_140529A**	Analysis Date: **5/29/2014 10:13:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0919	0.00250	0.100	0	91.9	90	110			
Arsenic	0.0942	0.00500	0.100	0	94.2	90	110			
Lead	0.0999	0.00100	0.100	0	99.9	90	110			
IS: Bismuth	<0		0.200		97.1	70	200			

Sample ID **LCVL-140529**	Batch ID: **R73425**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_140529A**	Analysis Date: **5/29/2014 10:17:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00174	0.00250	0.00200	0	87.2	70	130			
Arsenic	0.00466	0.00500	0.00500	0	93.2	70	130			
Lead	0.00105	0.00100	0.00100	0	105	70	130			
IS: Bismuth	<0		0.200		99.6	70	200			

Sample ID **CCV3-140529**	Batch ID: **R73425**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_140529A**	Analysis Date: **5/29/2014 11:59:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.195	0.00250	0.200	0	97.3	90	110			
Arsenic	0.191	0.00500	0.200	0	95.7	90	110			
Lead	0.203	0.00100	0.200	0	102	90	110			
IS: Bismuth	<0		0.200		97.3	70	200			
IS: Germanium	<0		0.200		97.5	70	200			
IS: Indium	<0		0.200		94.9	70	200			

Sample ID **LCVL3-140529**	Batch ID: **R73425**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_140529A**	Analysis Date: **5/29/2014 12:02:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00176	0.00250	0.00200	0	88.1	70	130			
Arsenic	0.00447	0.00500	0.00500	0	89.4	70	130			
Lead	0.000992	0.00100	0.00100	0	99.2	70	130			
IS: Bismuth	<0		0.200		97.2	70	200			
IS: Germanium	<0		0.200		97.5	70	200			
IS: Indium	<0		0.200		95.5	70	200			

Sample ID **CCV4-140529**	Batch ID: **R73425**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_140529A**	Analysis Date: **5/29/2014 12:40:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.200	0.00250	0.200	0	99.8	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

Sample ID **CCV4-140529**	Batch ID: **R73425**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_140529A**	Analysis Date: **5/29/2014 12:40:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.192	0.00500	0.200	0	96.2	90	110			
Lead	0.202	0.00100	0.200	0	101	90	110			
IS: Bismuth	<0		0.200		95.5	70	200			
IS: Germanium	<0		0.200		93.0	70	200			
IS: Indium	<0		0.200		90.6	70	200			

Sample ID **LCVL4-140529**	Batch ID: **R73425**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_140529A**	Analysis Date: **5/29/2014 12:44:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00179	0.00250	0.00200	0	89.4	70	130			
Arsenic	0.00452	0.00500	0.00500	0	90.4	70	130			
Lead	0.000986	0.00100	0.00100	0	98.6	70	130			
IS: Bismuth	<0		0.200		98.2	70	200			
IS: Germanium	<0		0.200		95.9	70	200			
IS: Indium	<0		0.200		94.2	70	200			

Sample ID **CCV5-140529**	Batch ID: **R73425**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_140529A**	Analysis Date: **5/29/2014 1:07:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.201	0.00250	0.200	0	100	90	110			
Arsenic	0.193	0.00500	0.200	0	96.7	90	110			
Lead	0.199	0.00100	0.200	0	99.5	90	110			
IS: Bismuth	<0		0.200		101	70	200			
IS: Germanium	<0		0.200		99.4	70	200			
IS: Indium	<0		0.200		98.7	70	200			

Sample ID **LCVL5-140529**	Batch ID: **R73425**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_140529A**	Analysis Date: **5/29/2014 1:11:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00188	0.00250	0.00200	0	93.9	70	130			
Arsenic	0.00462	0.00500	0.00500	0	92.4	70	130			
Lead	0.00107	0.00100	0.00100	0	107	70	130			
IS: Bismuth	<0		0.200		98.4	70	200			
IS: Germanium	<0		0.200		99.8	70	200			
IS: Indium	<0		0.200		98.2	70	200			

Sample ID **CCV6-140529**	Batch ID: **R73425**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_140529A**	Analysis Date: **5/29/2014 1:51:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.203	0.00250	0.200	0	101	90	110			
IS: Indium	<0		0.200		97.8	70	200			

Sample ID **LCVL6-140529**	Batch ID: **R73425**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_140529A**	Analysis Date: **5/29/2014 1:55:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00174	0.00250	0.00200	0	87.1	70	130			
IS: Indium	<0		0.200		99.2	70	200			

Sample ID **CCV7-140529**	Batch ID: **R73425**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_140529A**	Analysis Date: **5/29/2014 2:05:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.200	0.00250	0.200	0	99.9	90	110			
IS: Indium	<0		0.200		95.9	70	200			

Sample ID **LCVL7-140529**	Batch ID: **R73425**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_140529A**	Analysis Date: **5/29/2014 2:09:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00170	0.00250	0.00200	0	85.0	70	130			
IS: Indium	<0		0.200		97.3	70	200			

DHL Analytical, Inc.

Date: *06-Jun-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1405261
Project: TCEQ - Rockwool Belton, TX

MQL SUMMARY REPORT

TestNo: SW6020A	MDL	MQL
Analyte	**mg/L**	**mg/L**
Antimony	0.000800	0.00250
Arsenic	0.00200	0.00500
Lead	0.000300	0.00100

Qualifiers: MQL -Method Quantitation Limit as defined by TRRP
MDL -Method Detection Limit as defined by TRRP

ICP-MS3
For

DHL Work Order
1405261

ICP-MS3_140602B
For

DHL Work Order
1405261

Lab Data Review Check List

EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS3_140602B SOP: Metals-ICP-MS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			x
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			x
P/A Factor	Before ICAL	Increasing trend	X			
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			x
ICSAB (N/A for Method 200.8)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLS and ICSA/ICSAB is N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			x
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%	X			
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%			X	
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%	X			
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)	X			
Dilution Test (SD) - RPD	Every Batch	10	X			
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)	X			

Lab Data Review Check List

EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			X
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> 5% of highest standard	X			
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality			X	X
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

TECHNICAL DIRECTOR / QA MANAGER APPROVAL SIGNATURE AND DATE STAMP:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> MDL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag data / Case narrative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

See Notes in Run Log

Analyst: [signature] Date of Completion: 6/3/2014

Second-Level Review: [signature] Reviewer Date Stamp:

REVIEWED
By Evelyn Ferrero at 10:59:10 AM, 6/4/2014

DHL Analytical, Inc.

Run ID: ICP-MS3_140602B **Run No.:** 73489

Analytical Run Date: 6/2/2014 **InstrumentID:** ICP-MS3

Analyst: Sara Wieland

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TW	CAL	R73489	6/2/2014 11:04:00 AM		
1/20 ppb STD.	1	ICPMS_TW	CAL	R73489	6/2/2014 11:16:00 AM		
10/200 ppb STD.	1	ICPMS_TW	CAL	R73489	6/2/2014 11:22:00 AM		
50/1000 ppb STD.	1	ICPMS_TW	CAL	R73489	6/2/2014 11:28:00 AM		
100/2000 ppb STD.	1	ICPMS_TW	CAL	R73489	6/2/2014 11:34:00 AM		
250/5000 ppb STD.	1	ICPMS_TW	CAL	R73489	6/2/2014 11:40:00 AM		
500/10000 ppb STD.	1	ICPMS_TW	CAL	R73489	6/2/2014 11:46:00 AM		
2000/25000 ppb STD.	1	ICPMS_TW	CAL	R73489	6/2/2014 11:52:00 AM		
ICSA-140602	1	ICPMS_TW	ICSA	R73489	6/2/2014 12:10:00 PM		
ICSAB-140602	1	ICPMS_TW	ICSB	R73489	6/2/2014 12:16:00 PM		
ICV1-140602	1	6020A_W	ICV	R73489	6/2/2014 12:41:00 PM		
ILCVL-140602	1	6020A_W	LCVL	R73489	6/2/2014 12:54:00 PM		
ICB1-140602	1	6020A_W	ICB	R73489	6/2/2014 1:00:00 PM		
CCV4-140602	1	6020A_W	CCV	R73489	6/2/2014 7:31:00 PM		
LCVL4-140602	1	6020A_W	LCVL	R73489	6/2/2014 8:07:00 PM		
CCB4-140602	1	6020A_W	CCB	R73489	6/2/2014 8:20:00 PM		
MB-63877	1	6020A_W	MBLK	63877	6/2/2014 8:26:00 PM		
LCS-63877	1	6020A_W	LCS	63877	6/2/2014 8:38:00 PM		
LCSD-63877	1	6020A_W	LCSD	63877	6/2/2014 8:44:00 PM		
1405261-24A	1	6020A_W	SAMP	63877	6/2/2014 8:56:00 PM		
1405261-24A SD	5	6020A_W	SD	63877	6/2/2014 9:02:00 PM		
1405261-17A	1	6020A_W	SAMP	63877	6/2/2014 9:20:00 PM		
1405261-18A	1	6020A_W	SAMP	63877	6/2/2014 9:26:00 PM		
1405261-19A	1	6020A_W	SAMP	63877	6/2/2014 9:32:00 PM		
1405261-20A	1	6020A_W	SAMP	63877	6/2/2014 9:38:00 PM		
1405261-21A	1	6020A_W	SAMP	63877	6/2/2014 9:44:00 PM		
1405261-22A	1	6020A_W	SAMP	63877	6/2/2014 9:50:00 PM		
1405261-23A	1	6020A_W	SAMP	63877	6/2/2014 9:56:00 PM		
1405261-24A PDS	1	6020A_W	PDS	63877	6/2/2014 10:03:00 PM		
1405261-24A MS	1	6020A_W	MS	63877	6/2/2014 10:09:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140425	ICPMS CCV 200/5000 PPB		06/30/2014
MET-H2CAL-1404	ICPMS High Cal2 2000ppb std 8		07/24/2014
MET-HCAL-14042	ICPMS High Cal 500ppb/10ppm s		07/24/2014
MET-ICV-140317	ICPMS ICV 100 ppb		06/15/2014
MET-IS-140416	INTERNAL STANDARD 1 PPM		07/15/2014
MET-L2CAL-14042	ICPMS Low Cal2 1/20ppb std 2		07/24/2014
MET-LCAL-140425	ICPMS Low Cal 10/200ppb std 3		07/24/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		07/24/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		07/24/2014
MET-MCAL-14042	ICPMS Mid Cal 250/5000ppb std		07/24/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140527-	250 PPM Naturals+Al+Fe PDS		08/25/2014
MET-PDS-140527-	10 PPM CUSTOM PDS SOLUTI		08/25/2014
MET-PDS-140527-	10 PPM Ag+Sb PDS		08/25/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		07/15/2014

DHL Analytical, Inc.

Run ID: ICP-MS3_140602B **Run No.:** 73489

1405261-24A MSD	1	6020A_W	MSD	63877	6/2/2014 10:15:00 PM		
CCV5-140602	1	6020A_W	CCV	R73489	6/2/2014 10:21:00 PM		
LCVL5-140602	1	6020A_W	LCVL	R73489	6/2/2014 10:57:00 PM		
CCB5-140602	1	6020A_W	CCB	R73489	6/2/2014 11:09:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140425	ICPMS CCV 200/5000 PPB		06/30/2014
MET-H2CAL-1404	ICPMS High Cal2 2000ppb std 8		07/24/2014
MET-HCAL-14042	ICPMS High Cal 500ppb/10ppm s		07/24/2014
MET-ICV-140317	ICPMS ICV 100 ppb		06/15/2014
MET-IS-140416	INTERNAL STANDARD 1 PPM		07/15/2014
MET-L2CAL-14042	ICPMS Low Cal2 1/20ppb std 2		07/24/2014
MET-LCAL-140425	ICPMS Low Cal 10/200ppb std 3		07/24/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		07/24/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		07/24/2014
MET-MCAL-14042	ICPMS Mid Cal 250/5000ppb std		07/24/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140527-	250 PPM Naturals+Al+Fe PDS		08/25/2014
MET-PDS-140527-	10 PPM CUSTOM PDS SOLUTI		08/25/2014
MET-PDS-140527-	10 PPM Ag+Sb PDS		08/25/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		07/15/2014

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		CALBEG	Start of CALIB						
2	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
3	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
4	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
5	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
6	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
7	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
8	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		1/20 ppb STD.	CAL ICPMS_TW	Level 2				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		10/200 ppb STD.	CAL ICPMS_TW	Level 3				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		50/1000 ppb STD.	CAL ICPMS_TW	Level 4				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		100/2000 ppb STD.	CAL ICPMS_TW	Level 5				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		250/5000 ppb STD.	CAL ICPMS_TW	Level 6				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		500/10000 ppb STD.	CAL ICPMS_TW	Level 7				
15	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		2000/25000 ppb STD.	CAL ICPMS_TW	Level 8				
16	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
17	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
18		Keyword		CALEND	End of CALIB						
19		Keyword		ICSBEG	Start of ICS						
20	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-140602	ICSAICPMS_TW	1.000				
21	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-140602	ICSBICPMS_TW	1.000				
22	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
23	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
24		Keyword		ICSEND	End of ICS						
25		Keyword		SMPLBEG	Start of SMPL						

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
26	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-140602	ICV ICPMS_TW	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-140602	ICV ICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	2101		ICB1-140602	ICB ICPMS_TW	1.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		ILCVL-140602	LCVL6020A_W	1.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1105		ICB1-140602	ICB ICPMS_TW	1.000				
31	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2201		MB-63869	MBLK200.8DW	1.000				
32	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2202		LCS-63869	LCS 200.8DW	1.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2203		LCSD-63869	LCSD200.8DW	1.000				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2204		1405325-01A	SAMP200.8DW	1.000				
36	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2205		1405325-02A	SAMP200.8DW	1.000				
37	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2206		1405325-01A MS	MS_200.8DW	1.000				
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-140602	CCV ICPMS_TW	1.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB1-140602	CCB ICPMS_TW	1.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL1-140602	LCVL6020A_W	1.000				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-140602	CCB ICPMS_TW	1.000				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2301		MB-63866	MBLK200.8DISS	1.000				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2302		FB-63866-1	MBLK200.8DISS	1.000				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2303		FB-63866-2	MBLK200.8DISS	1.000				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2304		LCS-63866	LCS 200.8DISS	1.000				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2305		LCSD-63866	LCSD200.8DISS	1.000				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2306		1405308-01C	SAMP200.8DISS	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
49	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2307		1405308-01C SD	SD 200.8DISS	5.000				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2308		1405272-01B	SAMP200.8DISS	1.000				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2309		1405317-01C	SAMP200.8DISS	1.000				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2310		1405308-01C PDS	PDS 200.8DISS	1.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2311		1405308-01C MS	MS 200.8DISS	1.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2312		1405308-01C MSD	MSD 200.8DISS	1.000				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-140602	CCV ICPMS_TW	1.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB2-140602	CCB ICPMS_TW	1.000				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL2-140602	LCVL6020A_W	1.000				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-140602	CCB ICPMS_TW	1.000				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3101		MB-63883	MBLKICPMS_TS	5.000				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3102		LCS-63883	LCS ICPMS_TS	5.000				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3103		LCSD-63883	LCSDICPMS_TS	5.000				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3104		1405239-01A	SAMPICPMS_TS	5.000				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3105		1405239-01A SD	SD 6020A_S	25.00				
65	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3106		1405330-01A	SAMPICPMS_TS	5.000				
66	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3107		1405131-42B	SAMPICPMS_TS	5.000				
67	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3108		1405131-43B	SAMPICPMS_TS	5.000				
68	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3109		1405131-44B	SAMPICPMS_TS	5.000				
69	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3110		1405239-02A	SAMPICPMS_TS	5.000				
70	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3111		1405239-03A	SAMPICPMS_TS	5.000				
71	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3112		1405239-04A	SAMPICPMS_TS	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
72	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3201		1405239-05A	SAMPICPMS_TS	5.000				
73	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3202		1405239-06A	SAMPICPMS_TS	5.000				
74	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3203		1405239-01A PDS	PDS ICPMS_TS	5.000				
75	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3204		1405239-01A MS	MS_ICPMS_TS	5.000				
76	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3205		1405239-01A MSD	MSD ICPMS_TS	5.000				
77	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-140602	CCV ICPMS_TW	1.000				
78	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	2112		CCV3-140602	CCV ICPMS_TW	1.000				
79	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB3-140602	CCB ICPMS_TW	1.000				
80	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB3-140602	CCB ICPMS_TW	1.000				
81	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL3-140602	LCVL6020A_W	1.000				
82	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL3-140602	LCVL6020A_W	1.000				
83	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB3-140602	CCB ICPMS_TW	1.000				
84	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-140602	CCB ICPMS_TW	1.000				
85	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3206		1405239-07A	SAMPICPMS_TS	5.000				
86	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3207		1405239-08A	SAMPICPMS_TS	5.000				
87	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3208		1405239-09A	SAMPICPMS_TS	5.000				
88	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3209		1405239-10A	SAMPICPMS_TS	5.000				
89	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3210		1405239-11A	SAMPICPMS_TS	5.000				
90	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3211		1405239-12A	SAMPICPMS_TS	5.000				
91	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3212		1405239-13A	SAMPICPMS_TS	5.000				
92	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3301		1405239-14A	SAMPICPMS_TS	5.000				
93	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3302		1405239-15A	SAMPICPMS_TS	5.000				
94	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3303		1405239-16A	SAMPICPMS_TS	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
95	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-140602	CCV ICPMS_TW	1.000				
96	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	2112		CCV4-140602	CCV ICPMS_TW	1.000				
97	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1306		CCV4-140602	CCV ICPMS_TW	1.000				
98	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB4-140602	CCB ICPMS_TW	1.000				
99	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB4-140602	CCB ICPMS_TW	1.000				
100	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL4-140602	LCVL6020A_W	1.000				
101	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL4-140602	LCVL6020A_W	1.000				
102	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB4-140602	CCB ICPMS_TW	1.000				
103	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB4-140602	CCB ICPMS_TW	1.000				
104	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2401		MB-63877	MBLK6020A_W	1.000				
105	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2402		MB-63783 TCLP	MBLKTCLP_MET	1.000				
106	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2403		LCS-63877	LCS 6020A_W	1.000				
107	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2404		LCSD-63877	LCSD6020A_W	1.000				
108	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
109	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2405		1405261-24A	SAMP6020A_W	1.000				
110	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2406		1405261-24A SD	SD 6020A_W	5.000				
111	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2407		1405284-01B	SAMPTCLP_MET	1.000				
112	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2408		1405276-51C	SAMPTCLP_MET	1.000				
113	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2409		1405261-17A	SAMP6020A_W	1.000				
114	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2410		1405261-18A	SAMP6020A_W	1.000				
115	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2411		1405261-19A	SAMP6020A_W	1.000				
116	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2412		1405261-20A	SAMP6020A_W	1.000				
117	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2501		1405261-21A	SAMP6020A_W	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
118	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2502		1405261-22A	SAMP6020A_W	1.000				
119	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2503		1405261-23A	SAMP6020A_W	1.000				
120	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2504		1405261-24A PDS	PDS 6020A_W	1.000				
121	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2505		1405261-24A MS	MS_6020A_W	1.000				
122	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2506		1405261-24A MSD	MSD 6020A_W	1.000				
123	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV5-140602	CCV ICPMS_TW	1.000				
124	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	2112		CCV5-140602	CCV ICPMS_TW	1.000				
125	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1306		CCV5-140602	CCV ICPMS_TW	1.000				
126	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB5-140602	CCB ICPMS_TW	1.000				
127	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB5-140602	CCB ICPMS_TW	1.000				
128	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL5-140602	LCVL6020A_W	1.000				
129	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL5-140602	LCVL6020A_W	1.000				
130	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB5-140602	CCB ICPMS_TW	1.000				
131	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-140602	CCB ICPMS_TW	1.000				
132		Keyword		StandBy							
133		Keyword		SMPLEND	End of SMPL						
134		Keyword		End	End of Sequence						
135		Keyword		CCVBEG	Start of CCV						
136		Keyword		CCVEND	End of CCV						
137		Keyword		BLKBEG	Start of BLANK						
138		Keyword		BLKEND	End of BLANK						
139		Keyword		ERRBEG	Start of ERRTERM						
140		Keyword		ERREND	End of ERRTERM						

DHL ANALYTICAL

EXTRACTION LOG - TCLP/SPLP

DHL WORK ORDER #: 1405276, 1405284 ANALYST/DATE: 05-27-2014 JAL

BATCH #: ~~63784~~, JAL 5-27-14 63783, 63785 REVIEWER/DATE:

MATRIX	EPA METHOD	REAGENTS	Fluid pH Check (meter must be calibrated)
SOIL	1311 (TCLP) CMLC	TCLP #1 8177	TCLP #1 (4.88-4.98): 4.920
OTHER Rocks	100g sample required	TCLP #2	TCLP #2 (2.83-2.93): —
	1312 (SPLP) —	SPLP #1 —	
BALANCE # 23,28	100g sample required	SPLP #2 (rare) —	SPLP West (4.95-5.05): —
			SPLP East (4.95-5.05): —

CALIBRATION CHECK

pH METER ID#: #2 (ORION A211)

JAL 5-27-14 Avg. Slope 93.1% (92-102%)

140418 PH ~~140818~~-12

PH: 12.547

DHL Lot # (Standards)	Standard ID	pH Reading √
PH140421	pH 2.0	1.677
PH140418-4	pH 4.0	4.006
PH140418-7	pH 7.0	7.008
PH140418-10	pH 10.0	10.055
~~PH130210~~ JAL 5-27-14	pH 12.0	~~12.592~~

Analyst: JAL

Date/Time: ~~05-27-15~~ 13:30 05-27-14 JAL 5-27-2014

	DATE:	TIME: (16-20 HR)	TUMBLER: (28-32 RPM)	TEMP: (21-25°C)
TUMBLER ON:	05-27-2014	16:30	30	21.9 °C
TUMBLER OFF:	05-28-2014	9:26	30	23.6°C
MIN/MAX TEMP:	21.6°C	23.6°C	---	(21-25°C)

REVIEWED
By Evelyn Ferrero at 4:46:56 PM, 6/3/2014

FOR pH ANALYSES / FOR EXTRACTION

SAMPLE ID *Place Note on PBR if <100g*	SAMPLE WEIGHT (g)	INITIAL pH	SECONDARY pH	EXT. FLUID #	SAMPLE WEIGHT (g)	FLUID VOL (mL)	Container Type	% Solids	Final pH
MB-63783/63785	—	—	—	#1	—	958	P / G / Z	—	4.902
1405276-51C	4.97	9.251	1.788	#1	100.02	2000mL	P / G / Z	100%	6.639
1405284-013	4.99	9.357	1.224	#1	101.02	2020mL	P / G / Z	100%	6.652
							P / G / Z		
							P / G / Z		
							P / G / Z		
							P / G / Z		
							P / G / Z		
							P / G / Z		
							P / G / Z		
							P / G / Z		

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/30/2014 8:29:00 AM**
Digestion: **Start: 5/30/2014 9:40:00 AM / Stop: 5/30/2014 2:35:00 PM**
Prep End Date: **5/30/2014 3:39:10 PM**

Prep Batch **63877** Prep Code: **3005A** Technician: **Ryan Oliver**

Prep Factor Units: **mL/mL**

Equipment List
Thermometer #77
Hot Block #2

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1405261-17A	Aqueous		50	50	1.000	1 of 1
1405261-18A	Aqueous		50	50	1.000	1 of 1
1405261-19A	Aqueous		50	50	1.000	1 of 1
1405261-20A	Aqueous		50	50	1.000	1 of 1
1405261-21A	Aqueous		50	50	1.000	1 of 1
1405261-22A	Aqueous		50	50	1.000	1 of 1
1405261-23A	Aqueous		50	50	1.000	1 of 1
1405261-24A	Aqueous		50	50	1.000	1 of 1
1405261-24A MS	Aqueous		50	50	1.000	of
1405261-24A MSD	Aqueous		50	50	1.000	of
1405261-24A PDS	Aqueous		50	50	1.000	of
1405261-24A SD	Aqueous		50	50	1.000	of
1405276-51C	Soil		5	50	10.000	1 of 1
1405284-01B	Soil		5	50	10.000	1 of 1
1405300-01A	Aqueous		50	50	1.000	1 of 1
1405300-02A	Aqueous		50	50	1.000	1 of 1
1405300-03A	Aqueous		50	50	1.000	1 of 1
1405300-04A	Aqueous		50	50	1.000	1 of 1
1405300-05A	Aqueous		50	50	1.000	1 of 1
1405300-06A	Aqueous		50	50	1.000	1 of 1
1405300-07A	Aqueous		50	50	1.000	1 of 1
1405300-08A	Aqueous		50	50	1.000	1 of 1
1405300-09A	Aqueous		50	50	1.000	1 of 1
1405300-10A	Aqueous		50	50	1.000	1 of 1
LCS-63877	Aqueous		50	50	1.000	of
LCSD-63877	Aqueous		50	50	1.000	of
MB-63783 TCLP			5	50	10.000	of

Number	Reagent Name	Amt	Units	Exp. Date
7684	Nitric Acid (Trace Metal Grade)	1	ml	08/07/2015
8095	Hydrochloric Acid (Trace Metal Grade)	1	ml	07/05/2016
8181	Digestion Vessels	69	ml	11/24/2014

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-140109-01	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/06/2015
MET-140109-02	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/10/2015
MET-SPIKE-140522-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	08/20/2014
MET-SPIKE-140522-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MS	0.2	06/22/2014
MET-SPIKE-140522-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	06/22/2014

REVIEWED
By Evelyn Ferrero at 4:45:49 PM, 6/3/2014

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/30/2014 8:29:00 AM**
Digestion: **Start: 5/30/2014 9:40:00 AM / Stop: 5/30/2014 2:35:00 PM**
Prep End Date: **5/30/2014 3:39:10 PM**

Prep Batch **63877** Prep Code: **3005A** Technician: **Ryan Oliver**

Prep Factor Units: **mL/mL**

Equipment List
Thermometer #77
Hot Block #2

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
MB-63877	Aqueous		50	50	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
7684	Nitric Acid (Trace Metal Grade)	1	ml	08/07/2015
8095	Hydrochloric Acid (Trace Metal Grade)	1	ml	07/05/2016
8181	Digestion Vessels	69	ml	11/24/2014

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-140109-01	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/06/2015
MET-140109-02	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/10/2015
MET-SPIKE-140522-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	08/20/2014
MET-SPIKE-140522-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MS	0.2	06/22/2014
MET-SPIKE-140522-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	06/22/2014

REVIEWED
By Evelyn Ferrero at 4:45:53 PM, 6/3/2014

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/27/2014 9:18:47 AM**
Digestion: **Start: 5/27/2014 4:30:00 PM / Stop: 5/28/2014 9:26:00 AM**
Prep End Date: **5/28/2014 11:28:05 AM**

Prep Batch **63783** Prep Code: **1311LM** Technician: **John Luu**

Prep Factor Units: **mL/g**

Equipment List

- Thermometer #53
- pH Meter #A211
- Balance # 23
- Balance # 20

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1405276-51C	Soil		100	2000	20.000	1 of 1
1405284-01B	Soil		101	2020	20.000	1 of 1
MB-63783	Waste		100	958	9.580	of

Number	Reagent Name	Amt	Units	Exp. Date
7705	TCLP 47 MM FILTERS	3	filter	07/12/2014
8163	TCLP EXTRACTION FLUID CONCEN	6	vial	11/16/2014
8177	TCLP Solution #1	4978	ml	11/23/2014

REVIEWED
By Evelyn Ferrero at 4:47:02 PM, 6/3/2014

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
pH 131125	pH 7.00 Buffer Second Source for CCV.		20	10/30/2015
pH 140418-10	pH 10 Buffer Solution		20	09/01/2015
pH 140418-12	pH 12 Buffer Solution		20	05/27/2015
PH 140418-4	pH 4 Buffer Solution		20	10/01/2015
pH 140418-7	pH 7 Buffer Solution		20	12/01/2015
ph 140421	pH 2.0 Buffer Solution		20	11/01/2015

Calibration Summary Report

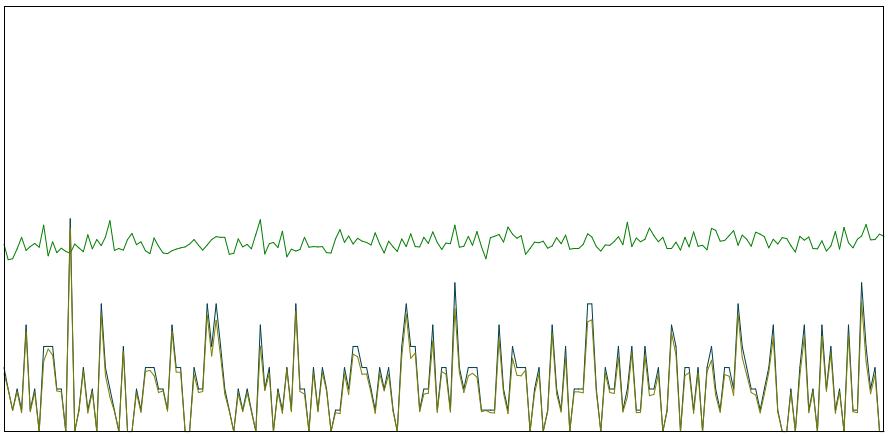
Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3Fe.c
Last Update: Jun 02 2014 12:47 pm
Cal Type: Y=aX+[blank]

Standard	Date Acquired	File
BLANK STD 1	Jun 2 2014 11:04 am	c:\icpchem\1\data\14f02k01.b\002_ccb.d\
1/20 ppb STD.	Jun 2 2014 11:16 am	c:\icpchem\1\data\14f02k01.b\004cals.d\
10/200 ppb STD.	Jun 2 2014 11:22 am	c:\icpchem\1\data\14f02k01.b\005cals.d\
50/1000 ppb STD.	Jun 2 2014 11:28 am	c:\icpchem\1\data\14f02k01.b\006cals.d\
100/2000 ppb STD.	Jun 2 2014 11:34 am	c:\icpchem\1\data\14f02k01.b\007cals.d\
250/5000 ppb STD.	Jun 2 2014 11:40 am	c:\icpchem\1\data\14f02k01.b\008cals.d\

Element Name	Corr Coef	Coef A	Coef B	Lvl 2	Lvl 6	Lvl 7	L7 %R	Lvl 8	L8 %R
Li	-0.0144	0.01636	9.627	1.21	3,446	6658		-22	
Be	0.9999	0.06053	0.00176	1.05	269	528	106%	1,990	100%
B	0.9998	0.04187	0.1756	-0.98	265	531	106%	1,990	100%
Na	1.0000	0.2224	21.17	16.43	4,960	9,868	99%	25,060	100%
Mg	1.0000	0.1017	0.105	21.07	4,929	9,794	98%	25,100	100%
Al	1.0000	0.02845	0.02041	18.81	4,990	9,992	100%	--------	######
K	1.0000	0.04971	4.908	18.34	4,979	10,010	100%	25,000	100%
Ca	1.0000	0.006811	0.1142	18.33	4,982	10,050	101%	24,980	100%
Ti	0.9998	0.02454	0.0013	0.95	272	533	107%	1,989	99%
V	1.0000	1.127	0.08096	0.93	252	496	99%	2,001	100%
Cr	1.0000	1.511	0.2491	0.99	251	490	98%	2,002	100%
Mn	1.0000	0.59	0.04022	1.08	256	502	100%	1,999	100%
Fe	0.9998	1.689	1.633	19.62	5,176	9,902	99%	--------	######
Co	1.0000	3.949	0.05195	0.96	248	487	97%	2,004	100%
Ni	1.0000	1.097	0.1308	1.05	259	502	100%	1,998	100%
Cu	1.0000	3.183	1.997	0.87	252	489	98%	2,002	100%
Zn	1.0000	0.3308	0.1841	0.98	257	500	100%	1,999	100%
As	1.0000	0.177	0.02224	0.90	252	499	100%	2,000	100%
Se	1.0000	0.008741	0.003443	0.92	248	496	99%	2,001	100%
Sr	0.9998	0.2551	0.01008	1.00	271	534	107%	1,988	99%
Mo	1.0000	0.05023	0.003213	0.87	258	515	103%	1,995	100%
Ag	1.0000	0.1295	0.001145	0.95	249	500	100%	--------	######
Cd	0.9999	0.02644	0.0001632	0.97	246	481	96%	2,005	100%
Sn	0.9999	0.07542	0.01149	0.92	262	519	104%	1,993	100%
Sb	0.9999	0.1034	0.003213	0.90	245	503	101%	--------	######
Ba	1.0000	0.03831	0.001407	0.90	244	484	97%	2,005	100%
Tl	1.0000	0.2715	0.009012	0.89	262	509	102%	1,996	100%
Pb	1.0000	0.3733	0.0161	0.92	247	501	100%	2,000	100%

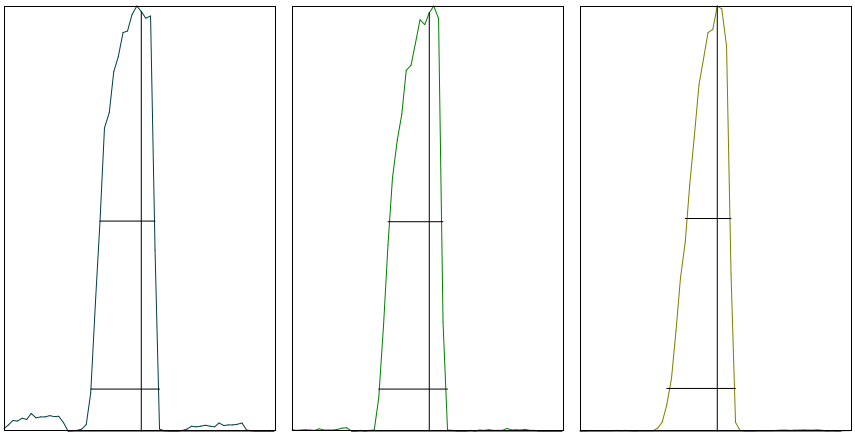
Tune Report

Tune File : He.U
Comment :



Integration Time: 0.1000 sec
Sampling Period: 0.2000 sec
n: 200
Oxide: 156/140 0.245%
Doubly Charged: 70/140 1.382%

m/z	Range	Count	Mean	RSD%	Background
51	20	0.0	2.3	74.27	0.10
59	5,000	2296.0	2221.1	3.99	0.10
51/59	1	---	0.105%	74.25	



m/z:	59	89	205
Height:	2,281	1,050	6,188
Axis:	59.05	89.05	205.05
W-50%:	0.60	0.60	0.50
W-10%:	0.7500	0.7500	0.7500

Integration Time: 0.1000 sec
Acquisition Time: 22.5600 sec

Y axis : Linear

Generated : Jun 02, 2014 09:36:10
Printed : Jun 02, 2014 09:36:12

Tune Report

Tune File : He.U
Comment :

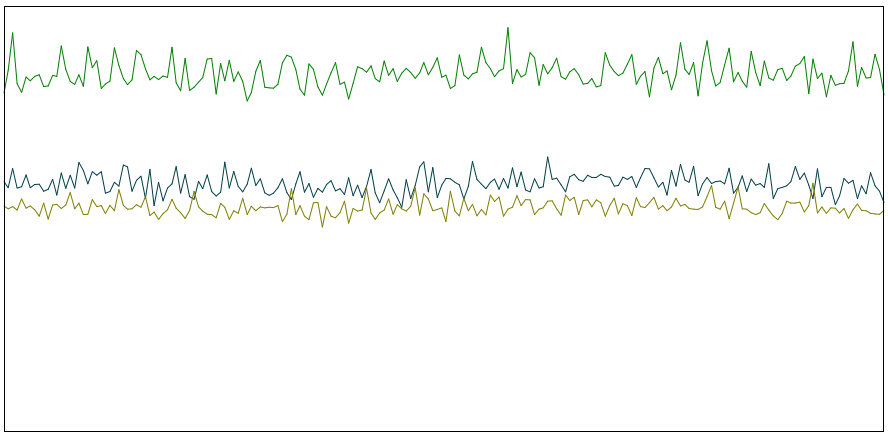
Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1550	W	Extract 1	:	0	V	AMU Gain	:	121	
RF Matching	:	1.7	V	Extract 2	:	-150	V	AMU Offset	:	121	
Smpl Depth	:	10	mm	Omega Bias-ce	:	-30	V	Axis Gain	:	0.9993	
Torch-H	:	-0.3	mm	Omega Lens-ce	:	2	V	Axis Offset	:	-0.06	
Torch-V	:	1.1	mm	Cell Entrance	:	-40	V	QP Bias	:	-17	V
Carrier Gas	:	1.15	L/min	QP Focus	:	-9	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1710	V
Sample Pump	:	---	rps	OctP RF	:	200	V	Pulse HV	:	1170	V
S/C Temp	:	2	degC	OctP Bias	:	-18	V				

===Reaction Cell===											
Reaction Mode	:	ON									
H2 Gas	:	0	mL/min	He Gas	:	4.8	mL/min	Optional Gas	:	---	%

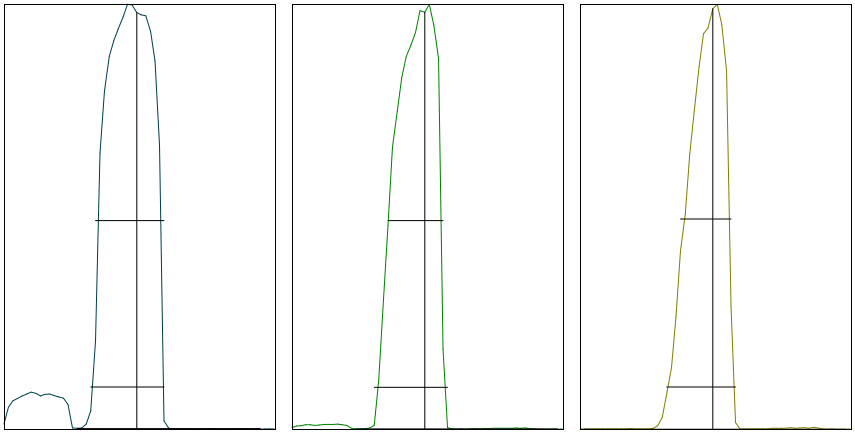
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.8200 sec	
n:	200	
Oxide:	156/140	0.906%
Doubly Charged:	70/140	1.628%

m/z	Range	Count	Mean	RSD%	Background
7	20,000	10777.0	11664.3	3.98	3.30
89	20,000	15835.0	16848.5	3.63	3.70
205	20,000	10395.0	10538.7	3.37	7.00
156/140	2	1.004%	0.902%	9.42	
70/140	5	1.521%	1.602%	7.57	
23	100,000	52458.0	52846.9	2.14	3.00
80	500,000	269292.0	271251.7	0.90	4.40



m/z:	7	89	205
Height:	11,452	16,757	10,640
Axis:	7.00	89.00	205.00
W-50%:	0.75	0.60	0.55
W-10%:	0.800	0.800	0.7500

Integration Time:	0.1000 sec
Acquisition Time:	22.7600 sec

Y axis : Linear

Generated : Jun 02, 2014 09:25:03
Printed : Jun 02, 2014 09:25:05

Tune Report

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1550	W	Extract 1	:	0	V	AMU Gain	:	121	
RF Matching	:	1.7	V	Extract 2	:	-150	V	AMU Offset	:	121	
Smpl Depth	:	10	mm	Omega Bias-ce	:	-30	V	Axis Gain	:	0.9993	
Torch-H	:	-0.3	mm	Omega Lens-ce	:	2	V	Axis Offset	:	-0.06	
Torch-V	:	1.1	mm	Cell Entrance	:	-40	V	QP Bias	:	-4	V
Carrier Gas	:	1.15	L/min	QP Focus	:	2	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1710	V
Sample Pump	:	---	rps	OctP RF	:	200	V	Pulse HV	:	1170	V
S/C Temp	:	2	degC	OctP Bias	:	-7	V				

===Reaction Cell===

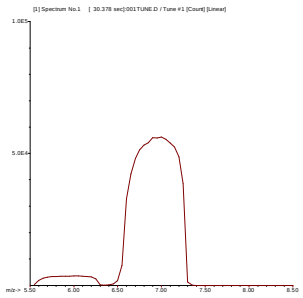
Reaction Mode	:	OFF									
H2 Gas	:	0	mL/min	He Gas	:	0	mL/min	Optional Gas	:	---	%

6020 QC Tune Report

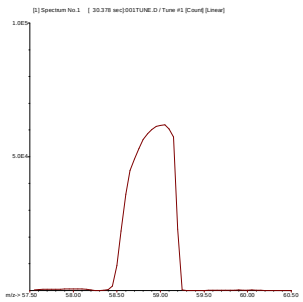
Data File: C:\ICPCHEM\1\DATA\14F02j00.B\001TUNE.D
Date Acquired: Jun 2 2014 09:53 am
Acq. Method: TN6020.M
Operator: SW
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

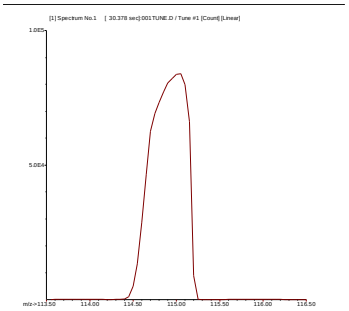
Element	Actual	Required	Flag
7 Li	2.59	5.00	
59 Co	2.41	5.00	
115 In	2.83	5.00	
205 Tl	0.86	5.00	



7 Li
Mass Calib.
Actual: 6.95
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:



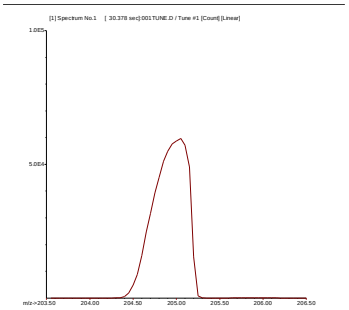
115 In

Mass Calib.

Actual:	115.00	
Required:	114.90 -	115.10
Flag:		

Peak Width

Actual:	0.55
Required:	0.90
Flag:	



205 Tl

Mass Calib.

Actual:	205.00	
Required:	204.90 -	205.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	

P/A Factor Tuning Report

Acquired:Jun 2 2014 09:40 am

Mass[amu]	Element	P/A Factor
6	Li	0.073249
23	Na	0.089276
24	Mg	0.093685
27	Al	0.096743
39	K	0.096588
44	Ca	Sensitivity too low
45	Sc	0.097415
47	Ti	Sensitivity too low
51	V	0.099861
52	Cr	0.102392
55	Mn	0.103884
59	Co	0.107343
60	Ni	0.109304
63	Cu	0.110922
66	Zn	0.110702
72	Ge	0.109711
75	As	0.108799
78	Se	Sensitivity too low
88	Sr	0.109929
95	Mo	0.108663
106	(Cd)	0.114460
107	Ag	Sensitivity too low
108	(Cd)	0.114649
111	Cd	0.115924
115	In	0.115412
118	Sn	0.115333
121	Sb	0.114961
137	Ba	Sensitivity too low
205	Tl	0.123713
206	(Pb)	0.123864
207	(Pb)	0.124055
208	Pb	0.123954
209	Bi	0.123775
238		0.123544

===Detector Parameters===
  Discriminator: 8.0 mV
      Analog HV: 1710 V
       Pulse HV: 1170 V

Calibration Blank QC Report

Acq. Method: DHL_3Fe.M Sample Name: BLANK STD 1
Operator: SW Instrument: ICPMS3
Last Cal. Update: Jun 02 2014 11:26 am
Date Acquired: Jun 2 2014 11:04 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	2907104.00	A	25070.00	0.86
7	Li	2	45	206633.50	P	3678.00	1.78
9	Be	2	45	37.78	P	12.62	33.41
11	B	2	45	3766.27	P	156.90	4.17
23	Na	1	45	7444.75	P	45.43	0.61
24	Mg	1	45	36.67	P	17.64	48.11
27	Al	1	45	7.11	P	3.36	47.19
39	K	1	45	1725.76	P	49.93	2.89
44	Ca	2	45	2450.34	P	5.78	0.24
45	Sc	1	---	70367.78	P	2099.00	2.98
45	Sc	2	---	4292461.00	A	51020.00	1.19
47	Ti	1	45	0.44	P	0.77	173.20
51	V	1	45	28.44	P	2.04	7.16
51	V	2	---		P		
52	Cr	1	45	87.56	P	9.65	11.02
55	Mn	1	45	14.22	P	10.69	75.16
56	Fe	1	72	404.46	P	80.16	19.82
59	Co	1	72	12.89	P	4.29	33.25
60	Ni	1	72	32.45	P	9.83	30.29
60	Ni	2	---		P		
63	Cu	1	72	495.13	P	23.90	4.83
63	Cu	2	---		P		
66	Zn	1	72	45.78	P	17.71	38.69
66	Zn	2	---		P		
72	Ge	1	---	49613.57	P	659.30	1.33
72	Ge	2	---		P		
75	As	1	72	5.52	P	0.50	9.08
78	Se	1	72	0.85	P	0.26	30.12
88	Sr	2	###	254.46	P	6.94	2.73
95	Mo	2	###	81.11	P	8.39	10.34
107	Ag	2	###	28.89	P	9.62	33.31
111	Cd	2	###	4.10	P	8.45	206.09
115	In	2	---	5051085.00	A	20410.00	0.40
118	Sn	2	###	290.02	P	26.04	8.98
121	Sb	2	###	81.12	P	7.70	9.49
137	Ba	2	###	35.56	P	12.62	35.49
205	Tl	2	###	182.23	P	34.05	18.69
208	Pb	2	###	325.57	P	21.43	6.58
209	Bi	2	---	4047822.00	A	45300.00	1.12

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 1/20 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jun 2 2014 11:16 am
Last Cal. Update: Jun 02 2014 11:29 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	2695905.00	A	24920.00	0.92	
7	Li	2	45	198641.30	P	898.50	0.45	
9	Be	2	45	1340.13	P	23.33	1.74	
11	B	2	45	2769.30	P	116.80	4.22	Fail
23	Na	1	45	8902.43	P	308.50	3.47	
24	Mg	1	45	805.61	P	18.96	2.35	
27	Al	1	45	199.12	P	12.67	6.36	
39	K	1	45	2086.93	P	66.93	3.21	
44	Ca	2	45	4922.28	P	199.90	4.06	
45	Sc	1	---	71700.72	P	751.80	1.05	
45	Sc	2	---	4118749.00	A	60130.00	1.46	
47	Ti	1	45	8.89	P	3.85	43.30	
51	V	1	45	404.46	P	18.20	4.50	
51	V	2	---		P			
52	Cr	1	45	627.14	P	64.01	10.21	
55	Mn	1	45	243.56	P	7.70	3.16	
56	Fe	1	72	8747.08	P	313.40	3.58	
59	Co	1	72	971.61	P	16.13	1.66	
60	Ni	1	72	321.34	P	20.96	6.52	
60	Ni	2	---		P			
63	Cu	1	72	1198.30	P	41.11	3.43	
63	Cu	2	---		P			
66	Zn	1	72	128.00	P	7.42	5.80	
66	Zn	2	---		P			
72	Ge	1	---	50329.55	P	718.10	1.43	
72	Ge	2	---		P			
75	As	1	72	45.52	P	4.46	9.80	
78	Se	1	72	2.89	P	0.51	17.63	
88	Sr	2	115	6525.36	P	142.50	2.18	
95	Mo	2	115	1162.32	P	43.51	3.74	
107	Ag	2	115	3081.63	P	143.70	4.66	
111	Cd	2	115	634.47	P	43.86	6.91	
115	In	2	---	4941432.00	A	20290.00	0.41	
118	Sn	2	115	1996.93	P	112.60	5.64	
121	Sb	2	115	2377.00	P	17.65	0.74	
137	Ba	2	115	887.85	P	34.05	3.84	
205	Tl	2	209	5009.09	P	232.60	4.64	
208	Pb	2	209	7205.67	P	167.90	2.33	
209	Bi	2	---	4016158.00	A	25310.00	0.63	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2695904.80	0.92	2907103.80	92.7	70 - 120	
45	Sc	1	71700.72	1.05	70367.78	101.9	70 - 120	
45	Sc	2	4118749.00	1.46	4292461.50	96.0	70 - 120	
72	Ge	1	50329.55	1.43	49613.57	101.4	70 - 120	
115	In	2	4941432.50	0.41	5051085.50	97.8	70 - 120	
209	Bi	2	4016157.80	0.63	4047822.50	99.2	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 10/200 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jun 2 2014 11:22 am
Last Cal. Update: Jun 02 2014 11:29 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	2734488.00	A	45010.00	1.65	
7	Li	2	45	240768.41	P	757.50	0.31	
9	Be	2	45	13017.19	P	199.00	1.53	
11	B	2	45	10951.83	P	174.90	1.60	
23	Na	1	45	22766.95	P	511.80	2.25	
24	Mg	1	45	7026.69	P	256.20	3.65	
27	Al	1	45	1966.41	P	81.56	4.15	
39	K	1	45	5369.16	P	219.60	4.09	
44	Ca	2	45	30227.79	P	346.10	1.15	
45	Sc	1	---	71657.03	P	1352.00	1.89	
45	Sc	2	---	4134321.00	A	31660.00	0.77	
47	Ti	1	45	93.34	P	8.33	8.92	
51	V	1	45	3950.91	P	81.94	2.07	
51	V	2	---		P			
52	Cr	1	45	5381.70	P	197.20	3.66	
55	Mn	1	45	2095.32	P	104.10	4.97	
56	Fe	1	72	82880.75	P	3333.00	4.02	
59	Co	1	72	9637.67	P	187.90	1.95	
60	Ni	1	72	2772.36	P	22.04	0.79	
60	Ni	2	---		P			
63	Cu	1	72	8286.93	P	279.20	3.37	
63	Cu	2	---		P			
66	Zn	1	72	888.94	P	32.51	3.66	
66	Zn	2	---		P			
72	Ge	1	---	50559.16	P	1098.00	2.17	
72	Ge	2	---		P			
75	As	1	72	433.64	P	20.34	4.69	
78	Se	1	72	20.81	P	1.19	5.71	
88	Sr	2	115	63775.57	P	470.10	0.74	
95	Mo	2	115	12079.82	P	206.70	1.71	
107	Ag	2	115	30812.82	P	163.10	0.53	
111	Cd	2	115	5980.12	P	100.90	1.69	
115	In	2	---	4971913.00	A	41900.00	0.84	
118	Sn	2	115	18811.04	P	224.30	1.19	
121	Sb	2	115	23567.53	P	312.00	1.32	
137	Ba	2	115	8744.70	P	80.09	0.92	
205	Tl	2	209	51714.43	P	667.70	1.29	
208	Pb	2	209	71890.48	P	850.50	1.18	
209	Bi	2	---	4067424.00	A	55750.00	1.37	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2734488.00	1.65	2907103.80	94.1	70 - 120	
45	Sc	1	71657.02	1.89	70367.78	101.8	70 - 120	
45	Sc	2	4134321.00	0.77	4292461.50	96.3	70 - 120	
72	Ge	1	50559.16	2.17	49613.57	101.9	70 - 120	
115	In	2	4971913.50	0.84	5051085.50	98.4	70 - 120	
209	Bi	2	4067423.80	1.37	4047822.50	100.5	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 50/1000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jun 2 2014 11:28 am
Last Cal. Update: Jun 02 2014 11:26 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	2760849.00	A	37440.00	1.36	
7	Li	2	45	443182.59	P	2965.00	0.67	
9	Be	2	45	68597.14	P	183.30	0.27	
11	B	2	45	49979.45	P	818.70	1.64	
23	Na	1	45	91455.80	P	1625.00	1.78	
24	Mg	1	45	38444.35	P	990.10	2.58	
27	Al	1	45	10834.60	P	378.70	3.50	
39	K	1	45	20843.69	P	587.20	2.82	
44	Ca	2	45	142966.80	P	1570.00	1.10	
45	Sc	1	---	76629.87	P	1156.00	1.51	
45	Sc	2	---	4209767.00	A	25030.00	0.59	
47	Ti	1	45	500.02	P	25.44	5.09	
51	V	1	45	21399.60	P	232.20	1.09	
51	V	2	---		P			
52	Cr	1	45	28575.86	P	418.20	1.46	
55	Mn	1	45	11391.18	P	100.40	0.88	
56	Fe	1	72	447628.19	P	9615.00	2.15	
59	Co	1	72	51394.57	P	820.50	1.60	
60	Ni	1	72	15183.32	P	44.28	0.29	
60	Ni	2	---		P			
63	Cu	1	72	42336.03	P	289.30	0.68	
63	Cu	2	---		P			
66	Zn	1	72	4605.38	P	71.09	1.54	
66	Zn	2	---		P			
72	Ge	1	---	52754.31	P	319.10	0.60	
72	Ge	2	---		P			
75	As	1	72	2326.37	P	63.13	2.71	
78	Se	1	72	119.78	P	7.42	6.19	
88	Sr	2	115	333348.31	P	5710.00	1.71	
95	Mo	2	115	63691.53	P	491.80	0.77	
107	Ag	2	115	160585.59	P	1845.00	1.15	
111	Cd	2	115	31940.93	P	191.30	0.60	
115	In	2	---	5044039.00	A	20100.00	0.40	
118	Sn	2	115	98894.46	P	1160.00	1.17	
121	Sb	2	115	125403.10	P	1024.00	0.82	
137	Ba	2	115	47039.50	P	1144.00	2.43	
205	Tl	2	209	271528.50	P	4068.00	1.50	
208	Pb	2	209	375107.09	P	2527.00	0.67	
209	Bi	2	---	4089725.00	A	54450.00	1.33	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2		2760849.00	1.36	2907103.80	95.0	70 -	120	
45	Sc	1		76629.87	1.51	70367.78	108.9	70 -	120	
45	Sc	2		4209767.00	0.59	4292461.50	98.1	70 -	120	
72	Ge	1		52754.31	0.60	49613.57	106.3	70 -	120	
115	In	2		5044038.50	0.40	5051085.50	99.9	70 -	120	
209	Bi	2		4089725.30	1.33	4047822.50	101.0	70 -	120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 100/2000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jun 2 2014 11:34 am
Last Cal. Update: Jun 02 2014 11:32 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	2713743.00	A	62670.00	2.31	
7	Li	2	45	675037.88	M	13850.00	2.05	
9	Be	2	45	138180.41	P	2015.00	1.46	
11	B	2	45	96451.36	P	1533.00	1.59	
23	Na	1	45	171979.09	P	767.10	0.45	
24	Mg	1	45	75094.05	P	930.20	1.24	
27	Al	1	45	21581.43	P	514.70	2.38	
39	K	1	45	38945.27	P	445.10	1.14	
44	Ca	2	45	283460.31	P	2425.00	0.86	
45	Sc	1	---	73308.47	P	1248.00	1.70	
45	Sc	2	---	4082803.00	A	50260.00	1.23	
47	Ti	1	45	964.50	P	42.93	4.45	
51	V	1	45	41829.72	P	937.50	2.24	
51	V	2	---		P			
52	Cr	1	45	56336.91	P	1705.00	3.03	
55	Mn	1	45	22444.57	P	577.00	2.57	
56	Fe	1	72	884099.00	P	26470.00	2.99	
59	Co	1	72	101118.20	P	2366.00	2.34	
60	Ni	1	72	29266.94	P	646.10	2.21	
60	Ni	2	---		P			
63	Cu	1	72	83432.01	P	1742.00	2.09	
63	Cu	2	---		P			
66	Zn	1	72	8721.88	P	164.60	1.89	
66	Zn	2	---		P			
72	Ge	1	---	50979.34	P	535.00	1.05	
72	Ge	2	---		P			
75	As	1	72	4603.16	P	96.27	2.09	
78	Se	1	72	225.63	P	4.87	2.16	
88	Sr	2	115	660614.13	P	11060.00	1.67	
95	Mo	2	115	127527.10	P	1374.00	1.08	
107	Ag	2	115	317198.91	P	3358.00	1.06	
111	Cd	2	115	63000.82	P	578.30	0.92	
115	In	2	---	4847219.00	A	29990.00	0.62	
118	Sn	2	115	193228.00	P	2606.00	1.35	
121	Sb	2	115	248239.09	P	2729.00	1.10	
137	Ba	2	115	91909.49	P	1507.00	1.64	
205	Tl	2	209	537906.31	P	7643.00	1.42	
208	Pb	2	209	738138.00	P	7101.00	0.96	
209	Bi	2	---	3959988.00	A	37950.00	0.96	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2713743.30	2.31	2907103.80	93.3	70 - 120	
45	Sc	1	73308.48	1.70	70367.78	104.2	70 - 120	
45	Sc	2	4082803.30	1.23	4292461.50	95.1	70 - 120	
72	Ge	1	50979.34	1.05	49613.57	102.8	70 - 120	
115	In	2	4847218.50	0.62	5051085.50	96.0	70 - 120	
209	Bi	2	3959988.30	0.96	4047822.50	97.8	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 250/5000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jun 2 2014 11:40 am
Last Cal. Update: Jun 02 2014 11:38 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	2536047.00	A	47910.00	1.89	
7	Li	2	45	1346758.00	A	11830.00	0.88	
9	Be	2	45	332503.59	P	4151.00	1.25	
11	B	2	45	229873.41	P	1259.00	0.55	
23	Na	1	45	403618.91	P	6809.00	1.69	
24	Mg	1	45	179965.00	P	4647.00	2.58	
27	Al	1	45	50964.63	P	1435.00	2.82	
39	K	1	45	90612.32	P	989.50	1.09	
44	Ca	2	45	694771.69	P	1494.00	0.22	
45	Sc	1	---	71794.93	P	1184.00	1.65	
45	Sc	2	---	4081803.00	A	7007.00	0.17	
47	Ti	1	45	2398.05	P	32.92	1.37	
51	V	1	45	102167.20	P	2573.00	2.52	
51	V	2	---		A			
52	Cr	1	45	136349.59	P	3934.00	2.89	
55	Mn	1	45	54230.80	P	1502.00	2.77	
56	Fe	1	72	2194703.00	A	50330.00	2.29	
59	Co	1	72	245557.59	P	4006.00	1.63	
60	Ni	1	72	71218.97	P	923.10	1.30	
60	Ni	2	---		P			
63	Cu	1	72	202115.91	P	4246.00	2.10	
63	Cu	2	---		P			
66	Zn	1	72	21382.40	P	517.70	2.42	
66	Zn	2	---		P			
72	Ge	1	---	50191.44	P	467.80	0.93	
72	Ge	2	---		P			
75	As	1	72	11197.17	P	160.40	1.43	
78	Se	1	72	543.83	P	12.10	2.23	
88	Sr	2	115	1689913.00	A	7884.00	0.47	
95	Mo	2	115	317715.09	P	1942.00	0.61	
107	Ag	2	115	789265.88	P	1063.00	0.13	
111	Cd	2	115	158795.41	P	2497.00	1.57	
115	In	2	---	4894191.00	A	39460.00	0.81	
118	Sn	2	115	483133.09	P	2794.00	0.58	
121	Sb	2	115	619606.38	P	3235.00	0.52	
137	Ba	2	115	228566.70	P	3153.00	1.38	
205	Tl	2	209	1410566.00	A	11060.00	0.78	
208	Pb	2	209	1829446.00	P	11520.00	0.63	
209	Bi	2	---	3970243.00	A	21150.00	0.53	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2536047.30	1.89	2907103.80	87.2	70 - 120	
45	Sc	1	71794.93	1.65	70367.78	102.0	70 - 120	
45	Sc	2	4081803.00	0.17	4292461.50	95.1	70 - 120	
72	Ge	1	50191.44	0.93	49613.57	101.2	70 - 120	
115	In	2	4894191.50	0.81	5051085.50	96.9	70 - 120	
209	Bi	2	3970242.80	0.53	4047822.50	98.1	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 500/10000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jun 2 2014 11:46 am
Last Cal. Update: Jun 02 2014 11:44 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	2505186.00	A	36330.00	1.45	
7	Li	2	45	2444994.00	A	10260.00	0.42	
9	Be	2	45	659759.69	P	6966.00	1.06	
11	B	2	45	462547.31	P	3200.00	0.69	
23	Na	1	45	826267.38	A	10110.00	1.22	
24	Mg	1	45	371393.19	P	8200.00	2.21	
27	Al	1	45	105990.50	P	3055.00	2.88	
39	K	1	45	187456.59	P	4036.00	2.15	
44	Ca	2	45	1414652.00	A	8413.00	0.59	
45	Sc	1	---	74568.22	P	1140.00	1.53	
45	Sc	2	---	4125580.00	A	31070.00	0.75	
47	Ti	1	45	4876.15	P	78.33	1.61	
51	V	1	45	208403.41	P	4696.00	2.25	
51	V	2	---		A			
52	Cr	1	45	275783.19	P	5549.00	2.01	
55	Mn	1	45	110474.80	P	2520.00	2.28	
56	Fe	1	72	4315956.00	A	99680.00	2.31	
59	Co	1	72	495730.59	P	7040.00	1.42	
60	Ni	1	72	142064.59	P	1904.00	1.34	
60	Ni	2	---		P			
63	Cu	1	72	402123.09	P	6523.00	1.62	
63	Cu	2	---		A			
66	Zn	1	72	42756.76	P	826.30	1.93	
66	Zn	2	---		P			
72	Ge	1	---	51599.47	P	191.20	0.37	
72	Ge	2	---		P			
75	As	1	72	22795.99	P	346.40	1.52	
78	Se	1	72	1119.61	P	24.18	2.16	
88	Sr	2	115	3351925.00	A	37210.00	1.11	
95	Mo	2	115	635590.88	P	3757.00	0.59	
107	Ag	2	115	1592852.00	A	18710.00	1.17	
111	Cd	2	115	312756.59	P	2806.00	0.90	
115	In	2	---	4917897.00	A	24860.00	0.51	
118	Sn	2	115	963064.69	P	6718.00	0.70	
121	Sb	2	115	1279592.00	A	22130.00	1.73	
137	Ba	2	115	455580.00	P	6477.00	1.42	
205	Tl	2	209	2742452.00	A	21440.00	0.78	
208	Pb	2	209	3705916.00	A	32220.00	0.87	
209	Bi	2	---	3967182.00	A	24630.00	0.62	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2		2505186.50	1.45	2907103.80	86.2	70 -	120	
45	Sc	1		74568.22	1.53	70367.78	106.0	70 -	120	
45	Sc	2		4125580.30	0.75	4292461.50	96.1	70 -	120	
72	Ge	1		51599.47	0.37	49613.57	104.0	70 -	120	
115	In	2		4917897.00	0.51	5051085.50	97.4	70 -	120	
209	Bi	2		3967181.50	0.62	4047822.50	98.0	70 -	120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 2000/25000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jun 2 2014 11:52 am
Last Cal. Update: Jun 02 2014 11:50 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	2600429.00	A	19460.00	0.75	
7	Li	2	45	189632.20	P	1229.00	0.65	Fail
9	Be	2	45	2466773.00	A	26780.00	1.09	
11	B	2	45	1709787.00	A	24850.00	1.45	
23	Na	1	45	2071327.00	A	50680.00	2.45	
24	Mg	1	45	945121.00	A	46550.00	4.93	
27	Al	1	45	242.67	P	24.69	10.17	
39	K	1	45	461781.50	P	9969.00	2.16	
44	Ca	2	45	3487584.00	A	88830.00	2.55	
45	Sc	1	---	74031.91	P	1487.00	2.01	
45	Sc	2	---	4096323.00	A	54710.00	1.34	
47	Ti	1	45	18068.46	P	523.10	2.90	
51	V	1	45	834923.38	P	23480.00	2.81	
51	V	2	---		A			
52	Cr	1	45	1120095.00	A	43380.00	3.87	
55	Mn	1	45	436553.91	P	12610.00	2.89	
56	Fe	1	72	4395.61	P	278.60	6.34	
59	Co	1	72	2015231.00	A	42210.00	2.09	
60	Ni	1	72	558454.31	P	12700.00	2.27	
60	Ni	2	---		A			
63	Cu	1	72	1623881.00	A	31430.00	1.94	
63	Cu	2	---		A			
66	Zn	1	72	168483.80	P	4551.00	2.70	
66	Zn	2	---		A			
72	Ge	1	---	50939.62	P	567.30	1.11	
72	Ge	2	---		P			
75	As	1	72	90196.56	P	2114.00	2.34	
78	Se	1	72	4456.22	P	116.60	2.62	
88	Sr	2	115	12172820.00	A	166500.00	1.37	
95	Mo	2	115	2404884.00	A	37440.00	1.56	
107	Ag	2	115	1029.02	P	375.70	36.51	
111	Cd	2	115	1272094.00	A	16490.00	1.30	
115	In	2	---	4799470.00	A	81720.00	1.70	
118	Sn	2	115	3607814.00	A	35230.00	0.98	
121	Sb	2	115	1130.13	P	361.20	31.96	
137	Ba	2	115	1842782.00	A	19250.00	1.04	
205	Tl	2	209	10355070.00	A	189100.00	1.83	
208	Pb	2	209	14266760.00	A	189100.00	1.33	
209	Bi	2	---	3821122.00	A	24910.00	0.65	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2		2600429.30	0.75	2907103.80	89.5	70 -	120	
45	Sc	1		74031.91	2.01	70367.78	105.2	70 -	120	
45	Sc	2		4096323.30	1.34	4292461.50	95.4	70 -	120	
72	Ge	1		50939.62	1.11	49613.57	102.7	70 -	120	
115	In	2		4799470.00	1.70	5051085.50	95.0	70 -	120	
209	Bi	2		3821121.50	0.65	4047822.50	94.4	70 -	120	

ICSA QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\013ICSA.D\013ICSA.D#

Date Acquired:	Jun 2 2014 12:10 pm	Sample Name:	**ICSA-140602**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jun 02 2014 11:57 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	-68.600	ppb	2.54	8.00	5.00	
9	Be	2	45	0.130	ppb	29.13	0.32	0.80	
11	B	2	45	10.520	ppb	3.44	30.00	30.00	
23	Na	1	45	105700.000	ppb	0.46	#######	#######	
24	Mg	1	45	107900.000	ppb	0.34	#######	#######	
27	Al	1	45	103700.000	ppb	2.12	#######	#######	
39	K	1	45	111900.000	ppb	0.67	#######	#######	
44	Ca	2	45	104100.000	ppb	2.00	#######	#######	
47	Ti	1	45	2150.000	ppb	2.20	10.00	10.00	
51	V	1	45	0.347	ppb	15.07	10.00	10.00	
52	Cr	1	45	0.741	ppb	9.67	8.00	5.00	
55	Mn	1	45	4.189	ppb	2.61	8.00	10.00	
56	Fe	1	72	94780.000	ppb	2.33	#######	#######	
59	Co	1	72	0.862	ppb	3.77	8.00	10.00	
60	Ni	1	72	0.701	ppb	1.26	8.00	10.00	
63	Cu	1	72	0.818	ppb	1.90	8.00	10.00	
66	Zn	1	72	2.198	ppb	9.84	10.00	5.00	
75	As	1	72	0.716	ppb	5.58	4.00	5.00	
78	Se	1	72	0.331	ppb	0.00	2.00	5.00	
88	Sr	2	115	0.670	ppb	9.45	10.00	10.00	
95	Mo	2	115	2095.000	ppb	0.78	8.00	5.00	
107	Ag	2	115	0.169	ppb	10.59	0.80	2.00	
111	Cd	2	115	0.428	ppb	22.96	1.20	1.00	
118	Sn	2	115	0.476	ppb	6.19	10.00	10.00	
121	Sb	2	115	0.723	ppb	7.71	4.00	2.50	
137	Ba	2	115	0.464	ppb	13.84	8.00	10.00	
205	Tl	2	209	0.649	ppb	13.33	4.00	1.50	
208	Pb	2	209	0.612	ppb	13.76	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2167189.30	1.67	2907103.80	74.5	70 - 120	
45	Sc	1	71605.38	1.01	70367.78	101.8	70 - 120	
45	Sc	2	3726060.00	1.30	4292461.50	86.8	70 - 120	
72	Ge	1	49079.61	1.08	49613.57	98.9	70 - 120	
115	In	2	4412014.50	1.02	5051085.50	87.3	70 - 120	
209	Bi	2	3541395.00	1.55	4047822.50	87.5	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\014ICSB.D\014ICSB.D#

Date Acquired:	Jun 2 2014 12:16 pm	Sample Name:	**ICSAB-140602**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jun 02 2014 11:57 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	-108.90	ppb	0.72	---	80 -		120	
9	Be	2	45	0.14	ppb	33.51	---	80 -		120	
11	B	2	45	5.09	ppb	2.59	---	80 -		120	
23	Na	1	45	107200.00	ppb	2.96	100000.00	80 -		120	
24	Mg	1	45	109800.00	ppb	2.69	100000.00	80 -		120	
27	Al	1	45	103200.00	ppb	6.00	100000.00	80 -		120	
39	K	1	45	114100.00	ppb	2.33	100000.00	80 -		120	
44	Ca	2	45	105400.00	ppb	1.10	100000.00	80 -		120	
47	Ti	1	45	2212.00	ppb	3.73	---	80 -		120	
51	V	1	45	42.61	ppb	4.25	40.00	80 -		120	
52	Cr	1	45	21.24	ppb	2.90	20.00	80 -		120	
55	Mn	1	45	24.74	ppb	3.10	20.00	80 -		120	Fail
56	Fe	1	72	95260.00	ppb	4.47	100000.00	80 -		120	
59	Co	1	72	40.91	ppb	2.49	40.00	80 -		120	
60	Ni	1	72	40.79	ppb	3.62	40.00	80 -		120	
63	Cu	1	72	19.33	ppb	3.60	20.00	80 -		120	
66	Zn	1	72	21.54	ppb	2.10	20.00	80 -		120	
75	As	1	72	21.28	ppb	2.95	20.00	80 -		120	
78	Se	1	72	20.51	ppb	7.06	20.00	80 -		120	
88	Sr	2	115	0.60	ppb	8.79	---	80 -		120	
95	Mo	2	115	2127.00	ppb	1.05	---	80 -		120	
107	Ag	2	115	18.95	ppb	1.39	20.00	80 -		120	
111	Cd	2	115	10.22	ppb	1.56	10.00	80 -		120	
118	Sn	2	115	0.37	ppb	14.04	---	80 -		120	
121	Sb	2	115	1.00	ppb	4.57	---	80 -		120	
137	Ba	2	115	0.43	ppb	23.82	---	80 -		120	
205	Tl	2	209	0.44	ppb	16.57	---	80 -		120	
208	Pb	2	209	0.42	ppb	13.31	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	1910643.90	1.19	2907103.80	65.7	70 -		120	ISFail
45	Sc	1	64561.47	2.30	70367.78	91.7	70 -		120	
45	Sc	2	3544937.00	0.80	4292461.50	82.6	70 -		120	
72	Ge	1	46024.11	1.99	49613.57	92.8	70 -		120	
115	In	2	4349323.00	1.57	5051085.50	86.1	70 -		120	
209	Bi	2	3505209.00	0.18	4047822.50	86.6	70 -		120	

CCV QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\018ICV.D\018ICV.D#

Date Acquired:	Jun 2 2014 12:41 pm	Sample Name:	**ICV1-140602**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	-145.20	ppb	1.07	100.00	90 -	110	-145.2	Fail
9	Be	2	45	90.62	ppb	0.28	100.00	90 -	110	90.6	
11	B	2	45	81.65	ppb	1.11	100.00	90 -	110	81.7	Fail
23	Na	1	45	2574.00	ppb	0.99	2500.00	90 -	110	103.0	
24	Mg	1	45	2567.00	ppb	1.62	2500.00	90 -	110	102.7	
27	Al	1	45	2343.00	ppb	2.61	2500.00	90 -	110	93.7	
39	K	1	45	2675.00	ppb	0.65	2500.00	90 -	110	107.0	
44	Ca	2	45	2575.00	ppb	0.48	2500.00	90 -	110	103.0	
47	Ti	1	45	98.07	ppb	2.63	100.00	90 -	110	98.1	
51	V	1	45	97.69	ppb	1.52	100.00	90 -	110	97.7	
52	Cr	1	45	99.64	ppb	1.01	100.00	90 -	110	99.6	
55	Mn	1	45	102.40	ppb	3.76	100.00	90 -	110	102.4	
56	Fe	1	72	2333.00	ppb	2.91	2500.00	90 -	110	93.3	
59	Co	1	72	94.22	ppb	1.88	100.00	90 -	110	94.2	
60	Ni	1	72	96.76	ppb	3.13	100.00	90 -	110	96.8	
63	Cu	1	72	93.99	ppb	2.17	100.00	90 -	110	94.0	
66	Zn	1	72	99.80	ppb	1.51	100.00	90 -	110	99.8	
75	As	1	72	96.55	ppb	1.85	100.00	90 -	110	96.6	
78	Se	1	72	97.91	ppb	1.73	100.00	90 -	110	97.9	
88	Sr	2	115	97.98	ppb	0.71	100.00	90 -	110	98.0	
95	Mo	2	115	92.51	ppb	0.37	100.00	90 -	110	92.5	
107	Ag	2	115	92.68	ppb	0.37	100.00	90 -	110	92.7	
111	Cd	2	115	97.51	ppb	1.16	100.00	90 -	110	97.5	
118	Sn	2	115	100.40	ppb	0.52	100.00	90 -	110	100.4	
121	Sb	2	115	92.24	ppb	0.50	100.00	90 -	110	92.2	
137	Ba	2	115	95.90	ppb	1.18	100.00	90 -	110	95.9	
205	Tl	2	209	97.33	ppb	0.85	100.00	90 -	110	97.3	
208	Pb	2	209	97.13	ppb	0.46	100.00	90 -	110	97.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	1614099.50	2.03	2907103.80	55.5	70 -	120		ISFail
45	Sc	1	65405.64	0.62	70367.78	92.9	70 -	120		
45	Sc	2	3245496.30	1.04	4292461.50	75.6	70 -	120		
72	Ge	1	48048.06	2.25	49613.57	96.8	70 -	120		
115	In	2	4845137.50	0.53	5051085.50	95.9	70 -	120		
209	Bi	2	4181167.50	0.62	4047822.50	103.3	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\020LCVL.D\020LCVL.D#

Date Acquired:	Jun 2 2014 12:54 pm	Sample Name:	**ILCVL-140602**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	-108.20	ppb	0.36	5.00	70 -	130	######	Fail
9	Be	2	45	1.08	ppb	5.23	1.00	70 -	130	107.5	
11	B	2	45	16.41	ppb	1.58	20.00	70 -	130	82.1	
23	Na	1	45	102.20	ppb	4.17	100.00	70 -	130	102.2	
24	Mg	1	45	107.50	ppb	3.86	100.00	70 -	130	107.5	
27	Al	1	45	98.37	ppb	2.93	100.00	70 -	130	98.4	
39	K	1	45	108.40	ppb	0.19	100.00	70 -	130	108.4	
44	Ca	2	45	104.50	ppb	3.60	100.00	70 -	130	104.5	
47	Ti	1	45	5.78	ppb	15.98	5.00	70 -	130	115.7	
51	V	1	45	1.06	ppb	3.84	1.00	70 -	130	105.7	
52	Cr	1	45	5.04	ppb	2.97	5.00	70 -	130	100.8	
55	Mn	1	45	5.15	ppb	6.86	5.00	70 -	130	103.0	
56	Fe	1	72	94.01	ppb	3.42	100.00	70 -	130	94.0	
59	Co	1	72	4.64	ppb	4.04	5.00	70 -	130	92.9	
60	Ni	1	72	5.10	ppb	4.15	5.00	70 -	130	102.1	
63	Cu	1	72	4.49	ppb	1.23	5.00	70 -	130	89.8	
66	Zn	1	72	4.87	ppb	5.02	5.00	70 -	130	97.5	
75	As	1	72	4.76	ppb	2.63	5.00	70 -	130	95.2	
78	Se	1	72	4.66	ppb	3.11	5.00	70 -	130	93.3	
88	Sr	2	115	4.86	ppb	1.25	5.00	70 -	130	97.3	
95	Mo	2	115	4.85	ppb	3.77	5.00	70 -	130	97.0	
107	Ag	2	115	1.81	ppb	1.80	2.00	70 -	130	90.7	
111	Cd	2	115	1.01	ppb	7.85	1.00	70 -	130	101.2	
118	Sn	2	115	5.12	ppb	2.52	5.00	70 -	130	102.4	
121	Sb	2	115	1.79	ppb	4.67	2.00	70 -	130	89.4	
137	Ba	2	115	4.70	ppb	5.04	5.00	70 -	130	93.9	
205	Tl	2	209	1.13	ppb	2.73	1.00	70 -	130	113.1	
208	Pb	2	209	1.01	ppb	2.64	1.00	70 -	130	100.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	1814651.60	0.83	2907103.80	62.4	70 -	120		ISFail
45	Sc	1	68144.02	1.95	70367.78	96.8	70 -	120		
45	Sc	2	3356609.30	1.57	4292461.50	78.2	70 -	120		
72	Ge	1	49421.52	1.63	49613.57	99.6	70 -	120		
115	In	2	4834329.00	0.48	5051085.50	95.7	70 -	120		
209	Bi	2	4106835.00	1.37	4047822.50	101.5	70 -	120		

ICB QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\021_ICB.D\021_ICB.D#

Date Acquired:	Jun 2 2014 01:00 pm	Sample Name:	**ICB1-140602**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm	Instrument:	ICPMS3

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	-103.60	ppb	0.40	5.00	
9	Be	2	45	-0.01	ppb	51.51	0.80	
11	B	2	45	-0.51	ppb	1.38	10.00	
23	Na	1	45	-2.26	ppb	3.29	50.00	
24	Mg	1	45	1.36	ppb	34.47	50.00	
27	Al	1	45	3.23	ppb	6.18	30.00	
39	K	1	45	4.56	ppb	4.54	50.00	
44	Ca	2	45	-3.54	ppb	5.56	50.00	
47	Ti	1	45	0.00	ppb	173.20	10.00	
51	V	1	45	0.02	ppb	17.54	10.00	
52	Cr	1	45	0.02	ppb	17.25	3.00	
55	Mn	1	45	0.01	ppb	39.63	10.00	
56	Fe	1	72	1.62	ppb	8.64	50.00	
59	Co	1	72	0.02	ppb	23.12	3.00	
60	Ni	1	72	0.02	ppb	30.74	3.00	
63	Cu	1	72	-0.17	ppb	2.08	3.00	
66	Zn	1	72	-0.09	ppb	29.22	10.00	
75	As	1	72	0.03	ppb	18.90	10.00	
78	Se	1	72	-0.10	ppb	26.95	10.00	
88	Sr	2	115	0.01	ppb	33.72	10.00	
95	Mo	2	115	0.41	ppb	10.32	10.00	
107	Ag	2	115	0.01	ppb	37.21	2.00	
111	Cd	2	115	0.01	ppb	120.94	1.00	
118	Sn	2	115	0.03	ppb	6.57	10.00	
121	Sb	2	115	0.02	ppb	32.81	1.00	
137	Ba	2	115	0.02	ppb	46.46	3.00	
205	Tl	2	209	0.12	ppb	13.16	1.00	
208	Pb	2	209	0.03	ppb	17.52	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	1872070.60	0.85	2907103.80	64.4	70 - 120	ISFail
45	Sc	1	66630.29	2.31	70367.78	94.7	70 - 120	
45	Sc	2	3459102.80	1.26	4292461.50	80.6	70 - 120	
72	Ge	1	48566.56	1.17	49613.57	97.9	70 - 120	
115	In	2	4815736.00	1.26	5051085.50	95.3	70 - 120	
209	Bi	2	4072658.80	0.66	4047822.50	100.6	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\086CCV1.D\086CCV1.D#

Date Acquired:	Jun 2 2014 07:31 pm	Sample Name:	**CCV4-140602**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	2693.00	ppb	0.07	200.00	90 -	110	1346.5	Fail
9	Be	2	45	202.10	ppb	0.48	200.00	90 -	110	101.1	
11	B	2	45	217.20	ppb	0.60	200.00	90 -	110	108.6	
23	Na	1	45	4639.00	ppb	1.71	5000.00	90 -	110	92.8	
24	Mg	1	45	4695.00	ppb	2.73	5000.00	90 -	110	93.9	
27	Al	1	45	5014.00	ppb	3.47	5000.00	90 -	110	100.3	
39	K	1	45	5074.00	ppb	2.20	5000.00	90 -	110	101.5	
44	Ca	2	45	5050.00	ppb	0.79	5000.00	90 -	110	101.0	
47	Ti	1	45	218.00	ppb	2.84	200.00	90 -	110	109.0	
51	V	1	45	199.80	ppb	1.98	200.00	90 -	110	99.9	
52	Cr	1	45	198.00	ppb	3.08	200.00	90 -	110	99.0	
55	Mn	1	45	211.00	ppb	2.79	200.00	90 -	110	105.5	
56	Fe	1	72	5256.00	ppb	3.74	5000.00	90 -	110	105.1	
59	Co	1	72	199.70	ppb	2.39	200.00	90 -	110	99.9	
60	Ni	1	72	207.20	ppb	2.62	200.00	90 -	110	103.6	
63	Cu	1	72	200.70	ppb	2.10	200.00	90 -	110	100.4	
66	Zn	1	72	203.50	ppb	1.68	200.00	90 -	110	101.8	
75	As	1	72	201.40	ppb	2.64	200.00	90 -	110	100.7	
78	Se	1	72	215.50	ppb	4.61	200.00	90 -	110	107.8	
88	Sr	2	115	230.40	ppb	0.95	200.00	90 -	110	115.2	Fail
95	Mo	2	115	208.50	ppb	1.02	200.00	90 -	110	104.3	
107	Ag	2	115	202.80	ppb	0.97	200.00	90 -	110	101.4	
111	Cd	2	115	198.70	ppb	0.96	200.00	90 -	110	99.4	
118	Sn	2	115	209.90	ppb	1.43	200.00	90 -	110	105.0	
121	Sb	2	115	186.80	ppb	1.13	200.00	90 -	110	93.4	
137	Ba	2	115	193.30	ppb	0.82	200.00	90 -	110	96.7	
205	Tl	2	209	212.70	ppb	0.93	200.00	90 -	110	106.4	
208	Pb	2	209	202.00	ppb	1.19	200.00	90 -	110	101.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3097343.50	0.73	2907103.80	106.5	70 -	120		
45	Sc	1	81726.55	0.98	70367.78	116.1	70 -	120		
45	Sc	2	5029024.50	0.53	4292461.50	117.2	70 -	120		
72	Ge	1	57062.67	0.94	49613.57	115.0	70 -	120		
115	In	2	5738083.50	1.60	5051085.50	113.6	70 -	120		
209	Bi	2	4355861.00	0.79	4047822.50	107.6	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\092LCVL.D\092LCVL.D#

Date Acquired:	Jun 2 2014 08:07 pm	Sample Name:	**LCVL4-140602**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	7.16	ppb	0.43	5.00	70 -	130	143.1	Fail
9	Be	2	45	1.00	ppb	2.78	1.00	70 -	130	99.5	
11	B	2	45	19.19	ppb	0.38	20.00	70 -	130	96.0	
23	Na	1	45	43.36	ppb	2.19	100.00	70 -	130	43.4	Fail
24	Mg	1	45	104.80	ppb	2.01	100.00	70 -	130	104.8	
27	Al	1	45	96.12	ppb	4.88	100.00	70 -	130	96.1	
39	K	1	45	97.73	ppb	5.68	100.00	70 -	130	97.7	
44	Ca	2	45	103.90	ppb	1.87	100.00	70 -	130	103.9	
47	Ti	1	45	5.18	ppb	26.12	5.00	70 -	130	103.7	
51	V	1	45	0.99	ppb	3.57	1.00	70 -	130	99.2	
52	Cr	1	45	4.90	ppb	3.01	5.00	70 -	130	98.0	
55	Mn	1	45	5.07	ppb	3.97	5.00	70 -	130	101.5	
56	Fe	1	72	95.64	ppb	3.41	100.00	70 -	130	95.6	
59	Co	1	72	4.89	ppb	4.03	5.00	70 -	130	97.8	
60	Ni	1	72	5.25	ppb	2.05	5.00	70 -	130	105.1	
63	Cu	1	72	4.74	ppb	1.89	5.00	70 -	130	94.9	
66	Zn	1	72	4.94	ppb	8.84	5.00	70 -	130	98.8	
75	As	1	72	4.85	ppb	3.43	5.00	70 -	130	96.9	
78	Se	1	72	5.36	ppb	4.54	5.00	70 -	130	107.3	
88	Sr	2	115	5.17	ppb	2.82	5.00	70 -	130	103.3	
95	Mo	2	115	4.57	ppb	4.18	5.00	70 -	130	91.4	
107	Ag	2	115	1.81	ppb	3.54	2.00	70 -	130	90.3	
111	Cd	2	115	1.01	ppb	8.38	1.00	70 -	130	100.7	
118	Sn	2	115	4.88	ppb	2.98	5.00	70 -	130	97.5	
121	Sb	2	115	1.71	ppb	1.04	2.00	70 -	130	85.4	
137	Ba	2	115	4.34	ppb	1.99	5.00	70 -	130	86.8	
205	Tl	2	209	1.03	ppb	4.04	1.00	70 -	130	102.7	
208	Pb	2	209	0.98	ppb	2.96	1.00	70 -	130	97.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3455011.50	1.78	2907103.80	118.8	70 -	120		
45	Sc	1	79490.18	1.48	70367.78	113.0	70 -	120		
45	Sc	2	5039627.50	1.89	4292461.50	117.4	70 -	120		
72	Ge	1	55389.95	1.68	49613.57	111.6	70 -	120		
115	In	2	5653639.50	0.97	5051085.50	111.9	70 -	120		
209	Bi	2	4304983.00	1.52	4047822.50	106.4	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\094_CCB.D\094_CCB.D#

Date Acquired:	Jun 2 2014 08:20 pm	Sample Name:	**CCB4-140602**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	31.780	ppb	0.27	2.00	2.00	Failsoil
9	Be	2	45	-0.011	ppb	12.50	0.10	0.30	
11	B	2	45	-2.210	ppb	2.34	10.00	10.00	
23	Na	1	45	-62.670	ppb	1.06	50.00	#####	
24	Mg	1	45	-0.090	ppb	13.48	50.00	#####	
27	Al	1	45	1.540	ppb	10.53	50.00	10.00	
39	K	1	45	-20.240	ppb	6.26	50.00	#####	
44	Ca	2	45	-4.759	ppb	8.76	50.00	#####	
47	Ti	1	45	0.039	ppb	86.60	4.00	3.00	
51	V	1	45	0.036	ppb	20.98	4.00	3.00	
52	Cr	1	45	-0.081	ppb	26.82	2.00	2.00	
55	Mn	1	45	-0.032	ppb	24.12	2.00	3.00	
56	Fe	1	72	0.867	ppb	3.17	50.00	50.00	
59	Co	1	72	0.004	ppb	4.03	2.00	3.00	
60	Ni	1	72	0.009	ppb	6.90	2.00	3.00	
63	Cu	1	72	-0.180	ppb	2.91	2.00	2.00	
66	Zn	1	72	-0.077	ppb	24.75	4.00	2.00	
75	As	1	72	-0.026	ppb	28.26	2.00	2.00	
78	Se	1	72	0.084	ppb	31.11	0.60	2.00	
88	Sr	2	115	0.018	ppb	18.33	4.00	3.00	
95	Mo	2	115	0.059	ppb	24.83	2.00	2.00	
107	Ag	2	115	0.008	ppb	19.88	0.40	1.00	
111	Cd	2	115	0.021	ppb	45.89	0.40	0.30	
118	Sn	2	115	-0.062	ppb	22.38	4.00	3.00	
121	Sb	2	115	0.055	ppb	17.27	2.00	0.80	
137	Ba	2	115	0.007	ppb	27.70	2.00	3.00	
205	Tl	2	209	0.033	ppb	2.69	2.00	0.50	
208	Pb	2	209	0.005	ppb	17.01	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3577688.30	1.06	2907103.80	123.1	70 - 120	ISFail
45	Sc	1	78884.02	0.49	70367.78	112.1	70 - 120	
45	Sc	2	4950614.00	1.35	4292461.50	115.3	70 - 120	
72	Ge	1	55005.54	0.80	49613.57	110.9	70 - 120	
115	In	2	5465227.00	1.69	5051085.50	108.2	70 - 120	
209	Bi	2	4224415.00	0.95	4047822.50	104.4	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\095__PB.D\095__PB.D#

Date Acquired:	Jun 2 2014 08:26 pm	Sample Name:	**MB-63877**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLK6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.	RSD(%)	MDL	RL	Flag
7	Li	2	45	5.577 ppb	0.19	2.0	5.00	Fail
9	Be	2	45	-0.015 ppb	31.22	0.3	0.80	
11	B	2	45	-1.679 ppb	5.92	10.0	30.00	
23	Na	1	45	-50.230 ppb	3.79	100.0	#####	
24	Mg	1	45	2.824 ppb	13.95	100.0	#####	
27	Al	1	45	3.399 ppb	8.57	10.0	30.00	
39	K	1	45	-12.680 ppb	4.16	100.0	#####	
44	Ca	2	45	9.486 ppb	1.83	100.0	#####	
47	Ti	1	45	0.129 ppb	114.58	3.0	10.00	
51	V	1	45	0.045 ppb	19.09	3.0	10.00	
52	Cr	1	45	-0.024 ppb	20.74	2.0	5.00	
55	Mn	1	45	0.084 ppb	35.33	3.0	10.00	
56	Fe	1	72	1.932 ppb	6.21	50.0	#####	
59	Co	1	72	-0.003 ppb	24.02	3.0	10.00	
60	Ni	1	72	0.034 ppb	5.71	3.0	10.00	
63	Cu	1	72	-0.125 ppb	4.18	2.0	10.00	
66	Zn	1	72	0.653 ppb	21.18	2.0	5.00	
75	As	1	72	-0.041 ppb	12.08	2.0	5.00	
78	Se	1	72	0.064 ppb	26.46	2.0	5.00	
88	Sr	2	115	0.361 ppb	2.14	3.0	10.00	
95	Mo	2	115	0.080 ppb	11.47	2.0	5.00	
107	Ag	2	115	0.005 ppb	9.96	1.0	2.00	
111	Cd	2	115	0.029 ppb	38.70	0.3	1.00	
118	Sn	2	115	-0.051 ppb	9.87	3.0	10.00	
121	Sb	2	115	0.076 ppb	12.78	0.8	2.50	
137	Ba	2	115	0.037 ppb	8.33	3.0	10.00	
205	Tl	2	209	0.029 ppb	5.34	0.5	1.50	
208	Pb	2	209	0.029 ppb	17.31	0.3	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3501229.00	1.07	2907103.80	120.4	70 - 120	ISFail
45	Sc	1	79776.57	2.11	70367.78	113.4	70 - 120	
45	Sc	2	5088221.50	0.79	4292461.50	118.5	70 - 120	
72	Ge	1	55417.40	1.10	49613.57	111.7	70 - 120	
115	In	2	5637272.00	1.13	5051085.50	111.6	70 - 120	
209	Bi	2	4306665.50	1.24	4047822.50	106.4	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\097_LCS.D\097_LCS.D#

Date Acquired:	Jun 2 2014 08:38 pm	Sample Name:	LCS-63877
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	3005.00	ppb	1.95	200.00	80 -	120	1502.5	Fail
9	Be	2	45	209.90	ppb	0.97	200.00	80 -	120	105.0	
11	B	2	45	235.40	ppb	0.50	200.00	80 -	120	117.7	
23	Na	1	45	4780.00	ppb	0.46	5000.00	80 -	120	95.6	
24	Mg	1	45	4672.00	ppb	0.57	5000.00	80 -	120	93.4	
27	Al	1	45	4948.00	ppb	1.08	5000.00	80 -	120	99.0	
39	K	1	45	5039.00	ppb	0.56	5000.00	80 -	120	100.8	
44	Ca	2	45	5019.00	ppb	0.25	5000.00	80 -	120	100.4	
47	Ti	1	45	205.30	ppb	5.34	200.00	80 -	120	102.7	
51	V	1	45	188.20	ppb	0.90	200.00	80 -	120	94.1	
52	Cr	1	45	186.60	ppb	0.70	200.00	80 -	120	93.3	
55	Mn	1	45	201.50	ppb	0.95	200.00	80 -	120	100.8	
56	Fe	1	72	5092.00	ppb	0.86	5000.00	80 -	120	101.8	
59	Co	1	72	191.90	ppb	0.23	200.00	80 -	120	96.0	
60	Ni	1	72	200.70	ppb	0.61	200.00	80 -	120	100.4	
63	Cu	1	72	191.00	ppb	0.39	200.00	80 -	120	95.5	
66	Zn	1	72	194.20	ppb	0.56	200.00	80 -	120	97.1	
75	As	1	72	191.70	ppb	0.86	200.00	80 -	120	95.9	
78	Se	1	72	215.60	ppb	2.09	200.00	80 -	120	107.8	
88	Sr	2	115	222.80	ppb	0.83	200.00	80 -	120	111.4	
95	Mo	2	115	201.10	ppb	0.79	200.00	80 -	120	100.6	
107	Ag	2	115	195.30	ppb	0.88	200.00	80 -	120	97.7	
111	Cd	2	115	192.10	ppb	0.98	200.00	80 -	120	96.1	
118	Sn	2	115	202.80	ppb	0.65	200.00	80 -	120	101.4	
121	Sb	2	115	180.60	ppb	0.90	200.00	80 -	120	90.3	
137	Ba	2	115	187.60	ppb	0.83	200.00	80 -	120	93.8	
205	Tl	2	209	200.60	ppb	2.98	200.00	80 -	120	100.3	
208	Pb	2	209	196.00	ppb	0.59	200.00	80 -	120	98.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	3537306.50	0.95	2907103.80	121.7	70 -	120	ISFail
45	Sc	1	81098.92	0.90	70367.78	115.3	70 -	120	
45	Sc	2	4990091.50	0.89	4292461.50	116.3	70 -	120	
72	Ge	1	55432.17	0.63	49613.57	111.7	70 -	120	
115	In	2	5491679.00	0.42	5051085.50	108.7	70 -	120	
209	Bi	2	4215921.00	1.18	4047822.50	104.2	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\098_LCS.D\098_LCS.D#

Date Acquired:	Jun 2 2014 08:44 pm	Sample Name:	LCSD-63877
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSD6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	2959.00	ppb	0.19	200.00	80 -	120	1479.5	Fail
9	Be	2	45	206.80	ppb	0.26	200.00	80 -	120	103.4	
11	B	2	45	230.60	ppb	0.69	200.00	80 -	120	115.3	
23	Na	1	45	4816.00	ppb	0.88	5000.00	80 -	120	96.3	
24	Mg	1	45	4787.00	ppb	1.43	5000.00	80 -	120	95.7	
27	Al	1	45	5073.00	ppb	2.37	5000.00	80 -	120	101.5	
39	K	1	45	5135.00	ppb	0.13	5000.00	80 -	120	102.7	
44	Ca	2	45	4963.00	ppb	0.50	5000.00	80 -	120	99.3	
47	Ti	1	45	217.10	ppb	4.16	200.00	80 -	120	108.6	
51	V	1	45	193.80	ppb	1.58	200.00	80 -	120	96.9	
52	Cr	1	45	191.30	ppb	2.04	200.00	80 -	120	95.7	
55	Mn	1	45	204.20	ppb	0.89	200.00	80 -	120	102.1	
56	Fe	1	72	5203.00	ppb	1.77	5000.00	80 -	120	104.1	
59	Co	1	72	195.50	ppb	1.38	200.00	80 -	120	97.8	
60	Ni	1	72	203.70	ppb	1.24	200.00	80 -	120	101.9	
63	Cu	1	72	196.10	ppb	1.46	200.00	80 -	120	98.1	
66	Zn	1	72	198.60	ppb	1.05	200.00	80 -	120	99.3	
75	As	1	72	195.30	ppb	1.29	200.00	80 -	120	97.7	
78	Se	1	72	220.30	ppb	1.06	200.00	80 -	120	110.2	
88	Sr	2	115	220.40	ppb	0.82	200.00	80 -	120	110.2	
95	Mo	2	115	200.70	ppb	0.91	200.00	80 -	120	100.4	
107	Ag	2	115	195.20	ppb	0.68	200.00	80 -	120	97.6	
111	Cd	2	115	190.50	ppb	1.47	200.00	80 -	120	95.3	
118	Sn	2	115	201.70	ppb	1.49	200.00	80 -	120	100.9	
121	Sb	2	115	181.60	ppb	0.42	200.00	80 -	120	90.8	
137	Ba	2	115	186.00	ppb	0.41	200.00	80 -	120	93.0	
205	Tl	2	209	198.30	ppb	2.93	200.00	80 -	120	99.2	
208	Pb	2	209	193.00	ppb	1.21	200.00	80 -	120	96.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	3513293.30	1.10	2907103.80	120.9	70 -	120	ISFail
45	Sc	1	78978.22	0.98	70367.78	112.2	70 -	120	
45	Sc	2	5030671.50	0.91	4292461.50	117.2	70 -	120	
72	Ge	1	54327.40	0.66	49613.57	109.5	70 -	120	
115	In	2	5468447.00	0.90	5051085.50	108.3	70 -	120	
209	Bi	2	4165296.30	1.36	4047822.50	102.9	70 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\100AREF.D\100AREF.D#

Date Acquired:	Jun 2 2014 08:56 pm	Sample Name:	**1405261-24A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	183.100	ppb	#REF!	0.45	2000.00	>RL
9	Be	2	45	0.044	ppb	#REF!	47.74	2000.00	ND
11	B	2	45	607.000	ppb	#REF!	0.45	2000.00	>RL
23	Na	1	45	20830.000	ppb	#REF!	1.45	25000.00	>RL
24	Mg	1	45	8831.000	ppb	#REF!	2.79	25000.00	>RL
27	Al	1	45	17.020	ppb	#REF!	13.25	10000.00	ND
39	K	1	45	14070.000	ppb	#REF!	0.89	25000.00	>RL
44	Ca	2	45	167700.000	ppb	#REF!	0.95	25000.00	OUTCAL
47	Ti	1	45	0.282	ppb	#REF!	49.50	2000.00	ND
51	V	1	45	13.820	ppb	#REF!	1.62	2000.00	>RL
52	Cr	1	45	0.149	ppb	#REF!	12.12	2000.00	ND
55	Mn	1	45	1.577	ppb	#REF!	3.66	2000.00	ND
56	Fe	1	72	33.330	ppb	#REF!	1.95	10000.00	ND
59	Co	1	72	0.107	ppb	#REF!	10.02	2000.00	ND
60	Ni	1	72	0.413	ppb	#REF!	10.26	2000.00	ND
63	Cu	1	72	0.010	ppb	#REF!	6.13	2000.00	ND
66	Zn	1	72	22.260	ppb	#REF!	2.16	2000.00	>RL
75	As	1	72	95.090	ppb	#REF!	2.43	2000.00	>RL
78	Se	1	72	16.120	ppb	#REF!	0.73	2000.00	>RL
88	Sr	2	115	479.500	ppb	#REF!	0.53	2000.00	>RL
95	Mo	2	115	22.830	ppb	#REF!	1.24	2000.00	>RL
107	Ag	2	115	0.060	ppb	#REF!	52.66	500.00	ND
111	Cd	2	115	0.104	ppb	#REF!	7.18	2000.00	ND
118	Sn	2	115	0.122	ppb	#REF!	13.61	2000.00	ND
121	Sb	2	115	236.700	ppb	#REF!	1.46	500.00	>RL
137	Ba	2	115	68.910	ppb	#REF!	1.51	2000.00	>RL
205	Tl	2	209	0.242	ppb	#REF!	21.41	2000.00	ND
208	Pb	2	209	0.115	ppb	#REF!	21.70	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3160274.80	1.34	2907103.80	108.7	70 - 120	
45	Sc	1	76191.85	2.44	70367.78	108.3	70 - 120	
45	Sc	2	4691796.00	0.79	4292461.50	109.3	70 - 120	
72	Ge	1	53160.40	1.29	49613.57	107.1	70 - 120	
115	In	2	5155951.00	1.10	5051085.50	102.1	70 - 120	
209	Bi	2	3852124.00	1.33	4047822.50	95.2	70 - 120	

DT QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\101DT1.D\101DT1.D#

Date Acquired:	Jun 2 2014 09:02 pm	Sample Name:	**1405261-24A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD 6020A_W
Operator:	SW	Bench Diln:	5.00
Last Cal. Update:	Jun 02 2014 12:47 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	63.50	ppb	0.96	#########	90 -	110	0.0	
9	Be	2	45	0.02	ppb	16.47	0.04	90 -	110	228.2	
11	B	2	45	129.10	ppb	0.40	607.00	90 -	110	106.3	GOOD
23	Na	1	45	3974.00	ppb	0.55	20830.00	90 -	110	95.4	GOOD
24	Mg	1	45	1769.00	ppb	3.60	8831.00	90 -	110	100.2	GOOD
27	Al	1	45	5.63	ppb	15.75	17.02	90 -	110	165.3	
39	K	1	45	2732.00	ppb	1.25	14070.00	90 -	110	97.1	GOOD
44	Ca	2	45	33230.00	ppb	0.31	167700.00	90 -	110	99.1	GOOD
47	Ti	1	45	-0.05	ppb	0.00	0.28	90 -	110	-93.8	
51	V	1	45	2.78	ppb	6.01	13.82	90 -	110	100.5	GOOD
52	Cr	1	45	-0.04	ppb	10.22	0.15	90 -	110	-118.8	
55	Mn	1	45	0.33	ppb	8.44	1.58	90 -	110	103.0	GOOD
56	Fe	1	72	7.27	ppb	2.70	33.33	90 -	110	109.0	GOOD
59	Co	1	72	0.03	ppb	31.52	0.11	90 -	110	137.9	
60	Ni	1	72	0.08	ppb	18.03	0.41	90 -	110	100.2	GOOD
63	Cu	1	72	-0.06	ppb	4.72	0.01	90 -	110	######	
66	Zn	1	72	4.67	ppb	1.47	22.26	90 -	110	104.8	GOOD
75	As	1	72	18.61	ppb	2.29	95.09	90 -	110	97.9	GOOD
78	Se	1	72	3.04	ppb	28.09	16.12	90 -	110	94.2	GOOD
88	Sr	2	115	90.74	ppb	1.06	479.50	90 -	110	94.6	GOOD
95	Mo	2	115	4.48	ppb	1.02	22.83	90 -	110	98.1	GOOD
107	Ag	2	115	0.03	ppb	4.55	0.06	90 -	110	282.8	
111	Cd	2	115	0.05	ppb	18.94	0.10	90 -	110	238.8	
118	Sn	2	115	0.01	ppb	15.89	0.12	90 -	110	35.6	
121	Sb	2	115	45.74	ppb	1.51	236.70	90 -	110	96.6	GOOD
137	Ba	2	115	13.29	ppb	0.69	68.91	90 -	110	96.4	GOOD
205	Tl	2	209	0.10	ppb	5.19	0.24	90 -	110	198.7	
208	Pb	2	209	0.05	ppb	9.07	0.11	90 -	110	204.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3436160.00	0.99	2907103.80	118.2	70 -		120	
45	Sc	1	75889.27	1.27	70367.78	107.8	70 -		120	
45	Sc	2	4803440.50	0.52	4292461.50	111.9	70 -		120	
72	Ge	1	52985.87	1.32	49613.57	106.8	70 -		120	
115	In	2	5287337.50	1.31	5051085.50	104.7	70 -		120	
209	Bi	2	4009307.50	1.86	4047822.50	99.0	70 -		120	

Sample QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\104SMPL.D\104SMPL.D#

Date Acquired:	Jun 2 2014 09:20 pm	Sample Name:	**1405261-17A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	177.000	ppb	#REF!	2.33	2000.00	>RL
9	Be	2	45	-0.014	ppb	#REF!	50.00	2000.00	ND
11	B	2	45	140.000	ppb	#REF!	2.47	2000.00	>RL
23	Na	1	45	26080.000	ppb	#REF!	1.47	25000.00	OUTCAL
24	Mg	1	45	5532.000	ppb	#REF!	2.57	25000.00	>RL
27	Al	1	45	23.470	ppb	#REF!	10.59	10000.00	J
39	K	1	45	5596.000	ppb	#REF!	2.59	25000.00	>RL
44	Ca	2	45	142700.000	ppb	#REF!	2.96	25000.00	OUTCAL
47	Ti	1	45	0.556	ppb	#REF!	90.15	2000.00	ND
51	V	1	45	4.117	ppb	#REF!	2.69	2000.00	J
52	Cr	1	45	0.036	ppb	#REF!	6.10	2000.00	ND
55	Mn	1	45	1.449	ppb	#REF!	7.45	2000.00	ND
56	Fe	1	72	17.790	ppb	#REF!	3.51	10000.00	ND
59	Co	1	72	0.075	ppb	#REF!	13.14	2000.00	ND
60	Ni	1	72	0.280	ppb	#REF!	5.59	2000.00	ND
63	Cu	1	72	0.093	ppb	#REF!	0.84	2000.00	ND
66	Zn	1	72	16.120	ppb	#REF!	1.04	2000.00	>RL
75	As	1	72	1.632	ppb	#REF!	3.97	2000.00	ND
78	Se	1	72	34.600	ppb	#REF!	3.62	2000.00	>RL
88	Sr	2	115	332.800	ppb	#REF!	2.35	2000.00	>RL
95	Mo	2	115	5.076	ppb	#REF!	4.92	2000.00	>RL
107	Ag	2	115	0.010	ppb	#REF!	12.01	500.00	ND
111	Cd	2	115	0.042	ppb	#REF!	23.54	2000.00	ND
118	Sn	2	115	-0.014	ppb	#REF!	5.53	2000.00	ND
121	Sb	2	115	0.231	ppb	#REF!	7.86	500.00	ND
137	Ba	2	115	42.660	ppb	#REF!	3.21	2000.00	>RL
205	Tl	2	209	0.042	ppb	#REF!	14.54	2000.00	ND
208	Pb	2	209	0.076	ppb	#REF!	12.03	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2944251.30	2.26	2907103.80	101.3	70 - 120	
45	Sc	1	71967.87	1.50	70367.78	102.3	70 - 120	
45	Sc	2	4413152.00	2.17	4292461.50	102.8	70 - 120	
72	Ge	1	49913.80	2.00	49613.57	100.6	70 - 120	
115	In	2	4806445.00	2.10	5051085.50	95.2	70 - 120	
209	Bi	2	3604050.80	3.00	4047822.50	89.0	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\105SMPL.D\105SMPL.D#

Date Acquired:	Jun 2 2014 09:26 pm	Sample Name:	**1405261-18A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	430.000	ppb	#REF!	3.08	2000.00	>RL
9	Be	2	45	-0.005	ppb	#REF!	41.80	2000.00	ND
11	B	2	45	793.900	ppb	#REF!	3.28	2000.00	>RL
23	Na	1	45	40980.000	ppb	#REF!	1.83	25000.00	OUTCAL
24	Mg	1	45	10200.000	ppb	#REF!	2.88	25000.00	>RL
27	Al	1	45	12.420	ppb	#REF!	2.70	10000.00	J
39	K	1	45	11370.000	ppb	#REF!	1.85	25000.00	>RL
44	Ca	2	45	170500.000	ppb	#REF!	2.23	25000.00	OUTCAL
47	Ti	1	45	0.103	ppb	#REF!	99.97	2000.00	ND
51	V	1	45	0.417	ppb	#REF!	6.42	2000.00	ND
52	Cr	1	45	0.131	ppb	#REF!	5.21	2000.00	ND
55	Mn	1	45	39.220	ppb	#REF!	1.73	2000.00	>RL
56	Fe	1	72	24.130	ppb	#REF!	3.05	10000.00	ND
59	Co	1	72	0.157	ppb	#REF!	7.45	2000.00	ND
60	Ni	1	72	0.739	ppb	#REF!	2.34	2000.00	ND
63	Cu	1	72	0.569	ppb	#REF!	1.47	2000.00	ND
66	Zn	1	72	18.220	ppb	#REF!	3.84	2000.00	>RL
75	As	1	72	0.673	ppb	#REF!	5.89	2000.00	ND
78	Se	1	72	1.219	ppb	#REF!	8.54	2000.00	ND
88	Sr	2	115	901.200	ppb	#REF!	2.13	2000.00	>RL
95	Mo	2	115	0.553	ppb	#REF!	11.08	2000.00	ND
107	Ag	2	115	0.006	ppb	#REF!	18.90	500.00	ND
111	Cd	2	115	0.086	ppb	#REF!	6.35	2000.00	ND
118	Sn	2	115	-0.052	ppb	#REF!	4.69	2000.00	ND
121	Sb	2	115	1.326	ppb	#REF!	3.37	500.00	J
137	Ba	2	115	95.070	ppb	#REF!	1.59	2000.00	>RL
205	Tl	2	209	0.036	ppb	#REF!	10.15	2000.00	ND
208	Pb	2	209	0.035	ppb	#REF!	10.85	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2763428.00	1.79	2907103.80	95.1	70 - 120	
45	Sc	1	69952.07	1.25	70367.78	99.4	70 - 120	
45	Sc	2	4356226.50	1.79	4292461.50	101.5	70 - 120	
72	Ge	1	48885.89	1.36	49613.57	98.5	70 - 120	
115	In	2	4710051.00	1.63	5051085.50	93.2	70 - 120	
209	Bi	2	3425845.50	2.11	4047822.50	84.6	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\106SMPL.D\106SMPL.D#

Date Acquired:	Jun 2 2014 09:32 pm	Sample Name:	**1405261-19A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	100.900	ppb	#REF!	1.18	2000.00	>RL
9	Be	2	45	-0.006	ppb	#REF!	11.11	2000.00	ND
11	B	2	45	179.400	ppb	#REF!	1.19	2000.00	>RL
23	Na	1	45	68100.000	ppb	#REF!	1.40	25000.00	OUTCAL
24	Mg	1	45	15040.000	ppb	#REF!	2.59	25000.00	>RL
27	Al	1	45	18.280	ppb	#REF!	8.57	10000.00	J
39	K	1	45	6519.000	ppb	#REF!	2.03	25000.00	>RL
44	Ca	2	45	136000.000	ppb	#REF!	0.76	25000.00	OUTCAL
47	Ti	1	45	0.159	ppb	#REF!	114.58	2000.00	ND
51	V	1	45	3.960	ppb	#REF!	2.30	2000.00	J
52	Cr	1	45	-0.027	ppb	#REF!	16.04	2000.00	ND
55	Mn	1	45	0.418	ppb	#REF!	17.29	2000.00	ND
56	Fe	1	72	7.809	ppb	#REF!	2.47	10000.00	ND
59	Co	1	72	0.044	ppb	#REF!	15.23	2000.00	ND
60	Ni	1	72	0.762	ppb	#REF!	9.14	2000.00	ND
63	Cu	1	72	-0.023	ppb	#REF!	10.04	2000.00	ND
66	Zn	1	72	1.189	ppb	#REF!	8.91	2000.00	ND
75	As	1	72	1.373	ppb	#REF!	3.56	2000.00	ND
78	Se	1	72	9.707	ppb	#REF!	8.45	2000.00	>RL
88	Sr	2	115	734.700	ppb	#REF!	1.03	2000.00	>RL
95	Mo	2	115	0.891	ppb	#REF!	5.00	2000.00	ND
107	Ag	2	115	0.004	ppb	#REF!	30.11	500.00	ND
111	Cd	2	115	0.004	ppb	#REF!	250.48	2000.00	ND
118	Sn	2	115	-0.065	ppb	#REF!	19.63	2000.00	ND
121	Sb	2	115	1.214	ppb	#REF!	2.52	500.00	J
137	Ba	2	115	103.700	ppb	#REF!	2.06	2000.00	>RL
205	Tl	2	209	0.031	ppb	#REF!	14.68	2000.00	ND
208	Pb	2	209	0.031	ppb	#REF!	8.30	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2727073.80	1.20	2907103.80	93.8	70 - 120	
45	Sc	1	69027.35	1.35	70367.78	98.1	70 - 120	
45	Sc	2	4319739.00	0.92	4292461.50	100.6	70 - 120	
72	Ge	1	48220.21	1.49	49613.57	97.2	70 - 120	
115	In	2	4620857.50	0.98	5051085.50	91.5	70 - 120	
209	Bi	2	3338435.80	1.07	4047822.50	82.5	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\107SMPL.D\107SMPL.D#

Date Acquired:	Jun 2 2014 09:38 pm	Sample Name:	**1405261-20A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	128.000	ppb	#REF!	0.78	2000.00	>RL
9	Be	2	45	-0.004	ppb	#REF!	41.80	2000.00	ND
11	B	2	45	205.100	ppb	#REF!	1.48	2000.00	>RL
23	Na	1	45	71640.000	ppb	#REF!	1.40	25000.00	OUTCAL
24	Mg	1	45	13070.000	ppb	#REF!	2.79	25000.00	>RL
27	Al	1	45	54.890	ppb	#REF!	6.90	10000.00	>RL
39	K	1	45	6049.000	ppb	#REF!	2.58	25000.00	>RL
44	Ca	2	45	148200.000	ppb	#REF!	0.99	25000.00	OUTCAL
47	Ti	1	45	0.786	ppb	#REF!	28.65	2000.00	ND
51	V	1	45	6.480	ppb	#REF!	5.36	2000.00	J
52	Cr	1	45	0.072	ppb	#REF!	10.96	2000.00	ND
55	Mn	1	45	204.200	ppb	#REF!	2.56	2000.00	>RL
56	Fe	1	72	530.000	ppb	#REF!	3.07	10000.00	>RL
59	Co	1	72	0.774	ppb	#REF!	4.80	2000.00	ND
60	Ni	1	72	1.318	ppb	#REF!	5.82	2000.00	ND
63	Cu	1	72	0.664	ppb	#REF!	2.77	2000.00	ND
66	Zn	1	72	27.810	ppb	#REF!	3.04	2000.00	>RL
75	As	1	72	12.200	ppb	#REF!	3.85	2000.00	>RL
78	Se	1	72	14.930	ppb	#REF!	10.45	2000.00	>RL
88	Sr	2	115	593.100	ppb	#REF!	1.33	2000.00	>RL
95	Mo	2	115	0.248	ppb	#REF!	14.88	2000.00	ND
107	Ag	2	115	0.015	ppb	#REF!	24.26	500.00	ND
111	Cd	2	115	0.061	ppb	#REF!	42.79	2000.00	ND
118	Sn	2	115	0.004	ppb	#REF!	12.47	2000.00	ND
121	Sb	2	115	17.070	ppb	#REF!	2.20	500.00	>RL
137	Ba	2	115	91.230	ppb	#REF!	0.98	2000.00	>RL
205	Tl	2	209	0.029	ppb	#REF!	7.12	2000.00	ND
208	Pb	2	209	0.779	ppb	#REF!	2.52	2000.00	J

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2690792.30	0.98	2907103.80	92.6	70 - 120	
45	Sc	1	68950.31	0.86	70367.78	98.0	70 - 120	
45	Sc	2	4185497.00	0.96	4292461.50	97.5	70 - 120	
72	Ge	1	47960.30	1.09	49613.57	96.7	70 - 120	
115	In	2	4469360.50	1.64	5051085.50	88.5	70 - 120	
209	Bi	2	3240783.30	1.21	4047822.50	80.1	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\108SMPL.D\108SMPL.D#

Date Acquired:	Jun 2 2014 09:44 pm	Sample Name:	**1405261-21A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	663.900	ppb	#REF!	1.69	2000.00	>RL
9	Be	2	45	0.030	ppb	#REF!	25.09	2000.00	ND
11	B	2	45	351.800	ppb	#REF!	1.05	2000.00	>RL
23	Na	1	45	178500.000	ppb	#REF!	3.35	25000.00	OUTCAL
24	Mg	1	45	23850.000	ppb	#REF!	3.80	25000.00	>RL
27	Al	1	45	93.790	ppb	#REF!	3.14	10000.00	>RL
39	K	1	45	5610.000	ppb	#REF!	3.31	25000.00	>RL
44	Ca	2	45	269800.000	ppb	#REF!	0.70	25000.00	OUTCAL
47	Ti	1	45	1.361	ppb	#REF!	43.68	2000.00	ND
51	V	1	45	3.186	ppb	#REF!	1.19	2000.00	J
52	Cr	1	45	0.242	ppb	#REF!	4.00	2000.00	ND
55	Mn	1	45	78.470	ppb	#REF!	3.48	2000.00	>RL
56	Fe	1	72	265.700	ppb	#REF!	4.83	10000.00	>RL
59	Co	1	72	4.112	ppb	#REF!	5.31	2000.00	J
60	Ni	1	72	8.074	ppb	#REF!	2.22	2000.00	J
63	Cu	1	72	0.565	ppb	#REF!	4.56	2000.00	ND
66	Zn	1	72	29.420	ppb	#REF!	6.07	2000.00	>RL
75	As	1	72	1.950	ppb	#REF!	9.71	2000.00	ND
78	Se	1	72	6.743	ppb	#REF!	9.22	2000.00	>RL
88	Sr	2	115	2003.000	ppb	#REF!	1.17	2000.00	OUTCAL
95	Mo	2	115	1.255	ppb	#REF!	1.90	2000.00	ND
107	Ag	2	115	0.008	ppb	#REF!	18.90	500.00	ND
111	Cd	2	115	0.067	ppb	#REF!	39.43	2000.00	ND
118	Sn	2	115	0.029	ppb	#REF!	8.31	2000.00	ND
121	Sb	2	115	1.174	ppb	#REF!	4.34	500.00	J
137	Ba	2	115	38.600	ppb	#REF!	2.50	2000.00	>RL
205	Tl	2	209	0.051	ppb	#REF!	5.95	2000.00	ND
208	Pb	2	209	0.982	ppb	#REF!	0.92	2000.00	J

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2548243.30	1.65	2907103.80	87.7	70 - 120	
45	Sc	1	66045.18	3.13	70367.78	93.9	70 - 120	
45	Sc	2	4189701.00	0.60	4292461.50	97.6	70 - 120	
72	Ge	1	45170.86	2.90	49613.57	91.0	70 - 120	
115	In	2	4338721.50	1.24	5051085.50	85.9	70 - 120	
209	Bi	2	3074947.80	1.22	4047822.50	76.0	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\109SMPL.D\109SMPL.D#

Date Acquired:	Jun 2 2014 09:50 pm	Sample Name:	**1405261-22A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	136.500	ppb	#REF!	1.67	2000.00	>RL
9	Be	2	45	0.075	ppb	#REF!	4.12	2000.00	ND
11	B	2	45	248.000	ppb	#REF!	1.65	2000.00	>RL
23	Na	1	45	84190.000	ppb	#REF!	1.05	25000.00	OUTCAL
24	Mg	1	45	9467.000	ppb	#REF!	1.05	25000.00	>RL
27	Al	1	45	624.200	ppb	#REF!	1.27	10000.00	>RL
39	K	1	45	5010.000	ppb	#REF!	0.40	25000.00	>RL
44	Ca	2	45	298400.000	ppb	#REF!	1.85	25000.00	OUTCAL
47	Ti	1	45	4.412	ppb	#REF!	19.60	2000.00	J
51	V	1	45	9.087	ppb	#REF!	3.24	2000.00	J
52	Cr	1	45	0.782	ppb	#REF!	3.56	2000.00	ND
55	Mn	1	45	147.600	ppb	#REF!	0.66	2000.00	>RL
56	Fe	1	72	435.400	ppb	#REF!	0.52	10000.00	>RL
59	Co	1	72	1.238	ppb	#REF!	1.36	2000.00	ND
60	Ni	1	72	1.794	ppb	#REF!	2.27	2000.00	ND
63	Cu	1	72	1.642	ppb	#REF!	5.08	2000.00	ND
66	Zn	1	72	13.390	ppb	#REF!	0.96	2000.00	>RL
75	As	1	72	3.022	ppb	#REF!	4.05	2000.00	J
78	Se	1	72	66.850	ppb	#REF!	0.67	2000.00	>RL
88	Sr	2	115	579.900	ppb	#REF!	1.37	2000.00	>RL
95	Mo	2	115	16.140	ppb	#REF!	1.97	2000.00	>RL
107	Ag	2	115	0.017	ppb	#REF!	4.88	500.00	ND
111	Cd	2	115	0.142	ppb	#REF!	16.57	2000.00	ND
118	Sn	2	115	0.060	ppb	#REF!	11.58	2000.00	ND
121	Sb	2	115	55.430	ppb	#REF!	1.39	500.00	>RL
137	Ba	2	115	43.620	ppb	#REF!	1.15	2000.00	>RL
205	Tl	2	209	0.023	ppb	#REF!	15.17	2000.00	ND
208	Pb	2	209	1.942	ppb	#REF!	2.64	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2759244.30	1.14	2907103.80	94.9	70 - 120	
45	Sc	1	65656.23	0.65	70367.78	93.3	70 - 120	
45	Sc	2	4445644.50	1.40	4292461.50	103.6	70 - 120	
72	Ge	1	45866.74	0.54	49613.57	92.4	70 - 120	
115	In	2	4684210.50	1.13	5051085.50	92.7	70 - 120	
209	Bi	2	3311606.80	1.50	4047822.50	81.8	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\110SMPL.D\110SMPL.D#

Date Acquired:	Jun 2 2014 09:56 pm	Sample Name:	**1405261-23A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	249.100	ppb	#REF!	1.39	2000.00	>RL
9	Be	2	45	-0.011	ppb	#REF!	39.74	2000.00	ND
11	B	2	45	182.900	ppb	#REF!	1.36	2000.00	>RL
23	Na	1	45	44650.000	ppb	#REF!	2.45	25000.00	OUTCAL
24	Mg	1	45	10820.000	ppb	#REF!	2.81	25000.00	>RL
27	Al	1	45	46.110	ppb	#REF!	7.98	10000.00	>RL
39	K	1	45	4818.000	ppb	#REF!	1.02	25000.00	>RL
44	Ca	2	45	186600.000	ppb	#REF!	0.67	25000.00	OUTCAL
47	Ti	1	45	1.257	ppb	#REF!	45.43	2000.00	ND
51	V	1	45	5.604	ppb	#REF!	4.62	2000.00	J
52	Cr	1	45	0.145	ppb	#REF!	9.32	2000.00	ND
55	Mn	1	45	3.840	ppb	#REF!	5.04	2000.00	J
56	Fe	1	72	31.590	ppb	#REF!	4.26	10000.00	ND
59	Co	1	72	0.110	ppb	#REF!	5.14	2000.00	ND
60	Ni	1	72	1.228	ppb	#REF!	1.69	2000.00	ND
63	Cu	1	72	0.366	ppb	#REF!	5.63	2000.00	ND
66	Zn	1	72	1.738	ppb	#REF!	9.49	2000.00	ND
75	As	1	72	106.300	ppb	#REF!	3.72	2000.00	>RL
78	Se	1	72	54.100	ppb	#REF!	3.98	2000.00	>RL
88	Sr	2	115	894.500	ppb	#REF!	1.31	2000.00	>RL
95	Mo	2	115	26.640	ppb	#REF!	2.08	2000.00	>RL
107	Ag	2	115	0.015	ppb	#REF!	26.42	500.00	ND
111	Cd	2	115	0.085	ppb	#REF!	44.00	2000.00	ND
118	Sn	2	115	-0.037	ppb	#REF!	16.47	2000.00	ND
121	Sb	2	115	39.860	ppb	#REF!	1.08	500.00	>RL
137	Ba	2	115	27.320	ppb	#REF!	2.05	2000.00	>RL
205	Tl	2	209	0.021	ppb	#REF!	10.15	2000.00	ND
208	Pb	2	209	0.100	ppb	#REF!	3.51	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2480236.00	1.22	2907103.80	85.3	70 - 120	
45	Sc	1	68889.32	1.65	70367.78	97.9	70 - 120	
45	Sc	2	3815987.00	1.88	4292461.50	88.9	70 - 120	
72	Ge	1	48114.21	2.15	49613.57	97.0	70 - 120	
115	In	2	4011934.50	1.29	5051085.50	79.4	70 - 120	
209	Bi	2	2882954.80	1.67	4047822.50	71.2	70 - 120	

PDS QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\111_PDS.D\111_PDS.D#

Date Acquired:	Jun 2 2014 10:03 pm	Sample Name:	**1405261-24A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	204.00	ppb	1.71	#########	200	75-125	######	Fail
9	Be	2	45	220.90	ppb	1.25	0.04	200	75-125	110.4	
11	B	2	45	773.90	ppb	1.99	607.00	200	75-125	83.5	
23	Na	1	45	25000.00	ppb	0.56	20830.00	5000	75-125	83.4	
24	Mg	1	45	13650.00	ppb	0.62	8831.00	5000	75-125	96.4	
27	Al	1	45	5121.00	ppb	1.97	17.02	5000	75-125	102.1	
39	K	1	45	19210.00	ppb	0.35	14070.00	5000	75-125	102.8	
44	Ca	2	45	162500.00	ppb	1.95	167700.00	5000	75-125	-104.0	Fail
47	Ti	1	45	216.10	ppb	3.02	0.28	200	75-125	107.9	
51	V	1	45	220.90	ppb	1.31	13.82	200	75-125	103.5	
52	Cr	1	45	203.20	ppb	0.77	0.15	200	75-125	101.5	
55	Mn	1	45	211.30	ppb	1.33	1.58	200	75-125	104.9	
56	Fe	1	72	4901.00	ppb	1.54	33.33	5000	75-125	97.4	
59	Co	1	72	197.80	ppb	1.33	0.11	200	75-125	98.8	
60	Ni	1	72	202.30	ppb	1.01	0.41	200	75-125	100.9	
63	Cu	1	72	189.40	ppb	1.02	0.01	200	75-125	94.7	
66	Zn	1	72	216.60	ppb	1.73	22.26	200	75-125	97.2	
75	As	1	72	303.40	ppb	0.89	95.09	200	75-125	104.2	
78	Se	1	72	215.40	ppb	1.73	16.12	200	75-125	99.6	
88	Sr	2	115	676.10	ppb	1.60	479.50	200	75-125	98.3	
95	Mo	2	115	220.90	ppb	2.07	22.83	200	75-125	99.0	
107	Ag	2	115	186.70	ppb	2.18	0.06	200	75-125	93.3	
111	Cd	2	115	190.70	ppb	2.27	0.10	200	75-125	95.3	
118	Sn	2	115	210.40	ppb	1.93	0.12	200	75-125	105.1	
121	Sb	2	115	406.90	ppb	2.09	236.70	200	75-125	85.1	
137	Ba	2	115	266.40	ppb	2.49	68.91	200	75-125	98.7	
205	Tl	2	209	205.20	ppb	2.50	0.24	200	75-125	102.5	
208	Pb	2	209	202.50	ppb	2.31	0.11	200	75-125	101.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2933694.00	1.56	2907103.80	100.9	70 - 120	
45	Sc	1	65645.59	0.81	70367.78	93.3	70 - 120	
45	Sc	2	4061857.00	2.03	4292461.50	94.6	70 - 120	
72	Ge	1	46167.18	0.96	49613.57	93.1	70 - 120	
115	In	2	4221472.50	1.76	5051085.50	83.6	70 - 120	
209	Bi	2	3091372.50	1.58	4047822.50	76.4	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\112_MS.D\112_MS.D#

Date Acquired:	Jun 2 2014 10:09 pm	Sample Name:	**1405261-24A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	3246.00	ppb	1.82	########	200	80-120	######	Fail
9	Be	2	45	213.80	ppb	1.29	0.04	200	80-120	106.9	
11	B	2	45	820.20	ppb	1.83	607.00	200	80-120	106.6	
23	Na	1	45	25000.00	ppb	0.77	20830.00	5000	80-120	83.4	
24	Mg	1	45	13340.00	ppb	1.76	8831.00	5000	80-120	90.2	
27	Al	1	45	5209.00	ppb	2.62	17.02	5000	80-120	103.8	
39	K	1	45	18960.00	ppb	0.88	14070.00	5000	80-120	97.8	
44	Ca	2	45	167200.00	ppb	0.78	########	5000	80-120	-10.0	Fail
47	Ti	1	45	217.50	ppb	3.11	0.28	200	80-120	108.6	
51	V	1	45	217.00	ppb	2.05	13.82	200	80-120	101.6	
52	Cr	1	45	195.00	ppb	2.08	0.15	200	80-120	97.4	
55	Mn	1	45	207.80	ppb	1.79	1.58	200	80-120	103.1	
56	Fe	1	72	5137.00	ppb	1.72	33.33	5000	80-120	102.1	
59	Co	1	72	190.40	ppb	1.72	0.11	200	80-120	95.1	
60	Ni	1	72	196.40	ppb	2.58	0.41	200	80-120	98.0	
63	Cu	1	72	185.50	ppb	1.51	0.01	200	80-120	92.7	
66	Zn	1	72	207.30	ppb	2.18	22.26	200	80-120	92.5	
75	As	1	72	298.50	ppb	1.68	95.09	200	80-120	101.7	
78	Se	1	72	217.90	ppb	2.23	16.12	200	80-120	100.9	
88	Sr	2	115	688.60	ppb	0.93	479.50	200	80-120	104.6	
95	Mo	2	115	236.40	ppb	1.21	22.83	200	80-120	106.8	
107	Ag	2	115	192.30	ppb	1.58	0.06	200	80-120	96.1	
111	Cd	2	115	188.80	ppb	1.84	0.10	200	80-120	94.3	
118	Sn	2	115	211.70	ppb	2.04	0.12	200	80-120	105.8	
121	Sb	2	115	435.90	ppb	1.93	236.70	200	80-120	99.6	
137	Ba	2	115	265.00	ppb	1.97	68.91	200	80-120	98.0	
205	Tl	2	209	202.70	ppb	2.10	0.24	200	80-120	101.2	
208	Pb	2	209	197.30	ppb	1.75	0.11	200	80-120	98.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2919822.00	1.91	2907103.80	100.4	70 - 120	
45	Sc	1	62566.15	0.18	70367.78	88.9	70 - 120	
45	Sc	2	4119171.80	1.27	4292461.50	96.0	70 - 120	
72	Ge	1	44339.61	0.12	49613.57	89.4	70 - 120	
115	In	2	4265820.50	1.68	5051085.50	84.5	70 - 120	
209	Bi	2	3128239.80	1.71	4047822.50	77.3	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\113_MS.D\113_MS.D#

Date Acquired:	Jun 2 2014 10:15 pm	Sample Name:	**1405261-24A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	3174.00	ppb	0.85	########	200	80-120	######	Fail
9	Be	2	45	217.10	ppb	1.43	0.04	200	80-120	108.5	
11	B	2	45	831.20	ppb	2.40	607.00	200	80-120	112.1	
23	Na	1	45	25450.00	ppb	1.98	20830.00	5000	80-120	92.4	
24	Mg	1	45	13570.00	ppb	2.82	8831.00	5000	80-120	94.8	
27	Al	1	45	5251.00	ppb	3.13	17.02	5000	80-120	104.7	
39	K	1	45	19450.00	ppb	2.27	14070.00	5000	80-120	107.6	
44	Ca	2	45	172400.00	ppb	1.68	########	5000	80-120	94.0	
47	Ti	1	45	231.50	ppb	4.83	0.28	200	80-120	115.6	
51	V	1	45	222.30	ppb	2.83	13.82	200	80-120	104.2	
52	Cr	1	45	199.90	ppb	3.50	0.15	200	80-120	99.9	
55	Mn	1	45	212.10	ppb	2.83	1.58	200	80-120	105.3	
56	Fe	1	72	5266.00	ppb	3.39	33.33	5000	80-120	104.7	
59	Co	1	72	193.30	ppb	2.59	0.11	200	80-120	96.6	
60	Ni	1	72	199.50	ppb	2.61	0.41	200	80-120	99.5	
63	Cu	1	72	188.60	ppb	2.75	0.01	200	80-120	94.3	
66	Zn	1	72	213.00	ppb	2.59	22.26	200	80-120	95.4	
75	As	1	72	311.50	ppb	2.59	95.09	200	80-120	108.2	
78	Se	1	72	223.70	ppb	3.24	16.12	200	80-120	103.8	
88	Sr	2	115	706.60	ppb	1.21	479.50	200	80-120	113.6	
95	Mo	2	115	242.70	ppb	2.04	22.83	200	80-120	109.9	
107	Ag	2	115	196.50	ppb	2.17	0.06	200	80-120	98.2	
111	Cd	2	115	192.70	ppb	2.04	0.10	200	80-120	96.3	
118	Sn	2	115	215.80	ppb	1.93	0.12	200	80-120	107.8	
121	Sb	2	115	451.10	ppb	2.19	236.70	200	80-120	107.2	
137	Ba	2	115	272.10	ppb	1.41	68.91	200	80-120	101.6	
205	Tl	2	209	207.00	ppb	2.68	0.24	200	80-120	103.4	
208	Pb	2	209	202.00	ppb	2.33	0.11	200	80-120	100.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2876937.80	0.87	2907103.80	99.0	70 - 120	
45	Sc	1	67936.90	1.58	70367.78	96.5	70 - 120	
45	Sc	2	4248161.00	1.20	4292461.50	99.0	70 - 120	
72	Ge	1	48250.42	1.09	49613.57	97.3	70 - 120	
115	In	2	4411762.00	1.78	5051085.50	87.3	70 - 120	
209	Bi	2	3174740.80	1.93	4047822.50	78.4	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\114CCV1.D\114CCV1.D#

Date Acquired:	Jun 2 2014 10:21 pm	Sample Name:	**CCV5-140602**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	3187.00	ppb	0.62	200.00	90 -	110	1593.5	Fail
9	Be	2	45	225.10	ppb	0.70	200.00	90 -	110	112.6	Fail
11	B	2	45	238.80	ppb	0.83	200.00	90 -	110	119.4	Fail
23	Na	1	45	4755.00	ppb	1.49	5000.00	90 -	110	95.1	
24	Mg	1	45	4808.00	ppb	2.40	5000.00	90 -	110	96.2	
27	Al	1	45	5280.00	ppb	3.10	5000.00	90 -	110	105.6	
39	K	1	45	5322.00	ppb	1.46	5000.00	90 -	110	106.4	
44	Ca	2	45	5148.00	ppb	0.82	5000.00	90 -	110	103.0	
47	Ti	1	45	227.30	ppb	1.75	200.00	90 -	110	113.7	Fail
51	V	1	45	205.80	ppb	2.45	200.00	90 -	110	102.9	
52	Cr	1	45	200.00	ppb	3.17	200.00	90 -	110	100.0	
55	Mn	1	45	211.40	ppb	3.04	200.00	90 -	110	105.7	
56	Fe	1	72	5216.00	ppb	3.05	5000.00	90 -	110	104.3	
59	Co	1	72	197.90	ppb	2.48	200.00	90 -	110	99.0	
60	Ni	1	72	206.10	ppb	2.14	200.00	90 -	110	103.1	
63	Cu	1	72	198.60	ppb	1.95	200.00	90 -	110	99.3	
66	Zn	1	72	203.00	ppb	3.12	200.00	90 -	110	101.5	
75	As	1	72	209.70	ppb	2.22	200.00	90 -	110	104.9	
78	Se	1	72	210.20	ppb	1.52	200.00	90 -	110	105.1	
88	Sr	2	115	231.60	ppb	0.70	200.00	90 -	110	115.8	Fail
95	Mo	2	115	212.60	ppb	0.90	200.00	90 -	110	106.3	
107	Ag	2	115	197.30	ppb	0.64	200.00	90 -	110	98.7	
111	Cd	2	115	193.60	ppb	0.41	200.00	90 -	110	96.8	
118	Sn	2	115	209.10	ppb	0.85	200.00	90 -	110	104.6	
121	Sb	2	115	195.30	ppb	0.26	200.00	90 -	110	97.7	
137	Ba	2	115	197.30	ppb	1.07	200.00	90 -	110	98.7	
205	Tl	2	209	201.10	ppb	1.16	200.00	90 -	110	100.6	
208	Pb	2	209	197.90	ppb	0.56	200.00	90 -	110	99.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3033473.50	0.93	2907103.80	104.3	70 -	120		
45	Sc	1	65616.38	1.79	70367.78	93.2	70 -	120		
45	Sc	2	4145013.80	0.72	4292461.50	96.6	70 -	120		
72	Ge	1	46272.27	1.01	49613.57	93.3	70 -	120		
115	In	2	4355131.00	0.66	5051085.50	86.2	70 -	120		
209	Bi	2	3237908.50	0.37	4047822.50	80.0	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\120LCVL.D\120LCVL.D#

Date Acquired:	Jun 2 2014 10:57 pm	Sample Name:	**LCVL5-140602**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	75.67	ppb	0.64	5.00	70 -	130	1513.4	Fail
9	Be	2	45	1.08	ppb	8.85	1.00	70 -	130	108.3	
11	B	2	45	23.04	ppb	1.91	20.00	70 -	130	115.2	
23	Na	1	45	49.69	ppb	2.31	100.00	70 -	130	49.7	Fail
24	Mg	1	45	105.60	ppb	0.79	100.00	70 -	130	105.6	
27	Al	1	45	100.20	ppb	3.92	100.00	70 -	130	100.2	
39	K	1	45	103.90	ppb	0.83	100.00	70 -	130	103.9	
44	Ca	2	45	112.80	ppb	1.47	100.00	70 -	130	112.8	
47	Ti	1	45	6.87	ppb	7.92	5.00	70 -	130	137.5	Fail
51	V	1	45	1.05	ppb	4.13	1.00	70 -	130	104.5	
52	Cr	1	45	4.77	ppb	4.51	5.00	70 -	130	95.4	
55	Mn	1	45	4.93	ppb	2.36	5.00	70 -	130	98.6	
56	Fe	1	72	93.12	ppb	2.71	100.00	70 -	130	93.1	
59	Co	1	72	4.78	ppb	4.26	5.00	70 -	130	95.6	
60	Ni	1	72	4.99	ppb	1.27	5.00	70 -	130	99.9	
63	Cu	1	72	4.55	ppb	2.82	5.00	70 -	130	91.0	
66	Zn	1	72	4.52	ppb	13.02	5.00	70 -	130	90.5	
75	As	1	72	4.84	ppb	2.07	5.00	70 -	130	96.8	
78	Se	1	72	4.74	ppb	8.86	5.00	70 -	130	94.8	
88	Sr	2	115	5.10	ppb	2.11	5.00	70 -	130	102.0	
95	Mo	2	115	4.70	ppb	2.44	5.00	70 -	130	94.0	
107	Ag	2	115	1.76	ppb	4.08	2.00	70 -	130	87.8	
111	Cd	2	115	0.99	ppb	3.89	1.00	70 -	130	99.2	
118	Sn	2	115	4.92	ppb	2.70	5.00	70 -	130	98.3	
121	Sb	2	115	1.91	ppb	3.23	2.00	70 -	130	95.5	
137	Ba	2	115	4.60	ppb	2.72	5.00	70 -	130	92.0	
205	Tl	2	209	1.08	ppb	0.80	1.00	70 -	130	107.5	
208	Pb	2	209	0.98	ppb	1.55	1.00	70 -	130	98.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3496627.50	0.71	2907103.80	120.3	70 -	120		ISFail
45	Sc	1	69510.62	1.67	70367.78	98.8	70 -	120		
45	Sc	2	4406017.50	0.95	4292461.50	102.6	70 -	120		
72	Ge	1	48826.50	1.13	49613.57	98.4	70 -	120		
115	In	2	4690080.00	1.03	5051085.50	92.9	70 -	120		
209	Bi	2	3530742.00	1.60	4047822.50	87.2	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\122_CCB.D\122_CCB.D#

Date Acquired:	Jun 2 2014 11:09 pm	Sample Name:	**CCB5-140602**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	74.430	ppb	0.32	2.00	2.00	Failsoil
9	Be	2	45	0.002	ppb	12.39	0.10	0.30	
11	B	2	45	0.489	ppb	5.60	10.00	10.00	
23	Na	1	45	-55.630	ppb	5.20	50.00	#####	
24	Mg	1	45	0.098	ppb	20.41	50.00	#####	
27	Al	1	45	0.851	ppb	16.67	50.00	10.00	
39	K	1	45	-2.915	ppb	4.76	50.00	#####	
44	Ca	2	45	-1.121	ppb	1.98	50.00	#####	
47	Ti	1	45	-0.003	ppb	173.20	4.00	3.00	
51	V	1	45	0.051	ppb	16.22	4.00	3.00	
52	Cr	1	45	-0.060	ppb	14.32	2.00	2.00	
55	Mn	1	45	-0.007	ppb	15.80	2.00	3.00	
56	Fe	1	72	0.501	ppb	14.76	50.00	50.00	
59	Co	1	72	0.022	ppb	12.52	2.00	3.00	
60	Ni	1	72	0.013	ppb	33.94	2.00	3.00	
63	Cu	1	72	-0.209	ppb	6.90	2.00	2.00	
66	Zn	1	72	-0.152	ppb	26.23	4.00	2.00	
75	As	1	72	0.030	ppb	10.43	2.00	2.00	
78	Se	1	72	-0.021	ppb	43.84	0.60	2.00	
88	Sr	2	115	0.034	ppb	15.15	4.00	3.00	
95	Mo	2	115	0.123	ppb	4.67	2.00	2.00	
107	Ag	2	115	0.018	ppb	26.74	0.40	1.00	
111	Cd	2	115	0.021	ppb	88.44	0.40	0.30	
118	Sn	2	115	-0.040	ppb	27.61	4.00	3.00	
121	Sb	2	115	0.109	ppb	21.72	2.00	0.80	
137	Ba	2	115	0.006	ppb	10.19	2.00	3.00	
205	Tl	2	209	0.058	ppb	6.34	2.00	0.50	
208	Pb	2	209	0.010	ppb	7.25	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3486806.50	0.26	2907103.80	119.9	70 - 120	
45	Sc	1	71623.07	1.23	70367.78	101.8	70 - 120	
45	Sc	2	4383730.50	1.02	4292461.50	102.1	70 - 120	
72	Ge	1	49800.13	1.13	49613.57	100.4	70 - 120	
115	In	2	4641116.50	1.19	5051085.50	91.9	70 - 120	
209	Bi	2	3537150.00	1.15	4047822.50	87.4	70 - 120	

ICP-MS3_140602C
For

DHL Work Order
1405261

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS3_140602C SOP: Metals-ICP-MS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			X
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			X
P/A Factor	Before ICAL	Increasing trend	X			
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			X
ICSAB (N/A for Method 200.8)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLS and ICSA/ICSAB is N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			X
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%		X		
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%			X	
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%	X			
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	~~X~~	X		
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%	X			
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)	X			
Dilution Test (SD) - RPD	Every Batch	10	X			
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)	X			

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			x
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> 5% of highest standard	X			
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality	X			x
2. Are all corrective actions included?		X			
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?		X			

TECHNICAL DIRECTOR / QA MANAGER APPROVAL SIGNATURE AND DATE STAMP: ***QA APPROVED*** *By John DuPont at 10:11:15 AM, 6/4/2014*

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
_X_ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
X MB out of control (> MDL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag data / Case narrative
__ ICSA/ICSAB missing or out of control (± 20%)		_X_ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	_X_ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

See Notes in Run Log

MB-63783 TCLP: J-Flag hit for Cr >1/2RL, J-Flag hit for Ni <1/2RL. Sample 1405284-01B may be biased high for Ni.

CCV5-140602: Be recovery slightly high. Sample ND. LCVL, CCB pass. Data accepted.

Analyst: Date of Completion: 6/3/2014

Second-Level Review: Reviewer Date Stamp:

REVIEWED
By Evelyn Ferrero at 4:44:09 PM, 6/3/2014

DHL Analytical, Inc.

Run ID: ICP-MS3_140602C **Run No.:** 73491

Analytical Run Date: 6/2/2014 **InstrumentID:** ICP-MS3

Analyst: Sara Wieland

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TW	CAL	R73491	6/2/2014 11:04:00 AM		
1/20 ppb STD.	1	ICPMS_TW	CAL	R73491	6/2/2014 11:16:00 AM		
10/200 ppb STD.	1	ICPMS_TW	CAL	R73491	6/2/2014 11:22:00 AM		
50/1000 ppb STD.	1	ICPMS_TW	CAL	R73491	6/2/2014 11:28:00 AM		
100/2000 ppb STD.	1	ICPMS_TW	CAL	R73491	6/2/2014 11:34:00 AM		
250/5000 ppb STD.	1	ICPMS_TW	CAL	R73491	6/2/2014 11:40:00 AM		
500/10000 ppb STD.	1	ICPMS_TW	CAL	R73491	6/2/2014 11:46:00 AM		
2000/25000 ppb STD.	1	ICPMS_TW	CAL	R73491	6/2/2014 11:52:00 AM		
ICSA-140602	1	ICPMS_TW	ICSA	R73491	6/2/2014 12:10:00 PM		
ICSAB-140602	1	ICPMS_TW	ICSB	R73491	6/2/2014 12:16:00 PM		
ICV1-140602	1	TCLP_MET	ICV	R73491	6/2/2014 12:41:00 PM		
ILCVL-140602	1	6020A_W	LCVL	R73491	6/2/2014 12:54:00 PM		
ICB1-140602	1	TCLP_MET	ICB	R73491	6/2/2014 1:00:00 PM		
CCV4-140602	1	TCLP_MET	CCV	R73491	6/2/2014 7:31:00 PM		
LCVL4-140602	1	6020A_W	LCVL	R73491	6/2/2014 8:07:00 PM		
CCB4-140602	1	TCLP_MET	CCB	R73491	6/2/2014 8:20:00 PM		
MB-63877	1	TCLP_MET	MBLK	63877	6/2/2014 8:26:00 PM		
MB-63783 TCLP	1	TCLP_MET	MBLK	63877	6/2/2014 8:32:00 PM		J-flag Cr, Ni
LCS-63877	1	TCLP_MET	LCS	63877	6/2/2014 8:38:00 PM		
LCSD-63877	1	TCLP_MET	LCSD	63877	6/2/2014 8:44:00 PM		
1405261-24A	1	TCLP_MET	SAMP	63877	6/2/2014 8:56:00 PM		DNR: QC reference only
1405261-24A SD	5	TCLP_MET	SD	63877	6/2/2014 9:02:00 PM		
1405284-01B	1	TCLP_MET	SAMP	63877	6/2/2014 9:08:00 PM		
1405276-51C	1	TCLP_MET	SAMP	63877	6/2/2014 9:14:00 PM		
1405261-24A PDS	1	TCLP_MET	PDS	63877	6/2/2014 10:03:00 PM		
1405261-24A MS	1	TCLP_MET	MS	63877	6/2/2014 10:09:00 PM		
1405261-24A MSD	1	TCLP_MET	MSD	63877	6/2/2014 10:15:00 PM		
CCV5-140602	1	TCLP_MET	CCV	R73491	6/2/2014 10:21:00 PM		Be recovery slightly high. Sample ND. LCVL, CCB pass. Data accepted.
LCVL5-140602	1	6020A_W	LCVL	R73491	6/2/2014 10:57:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140425	ICPMS CCV 200/5000 PPB		06/30/2014
MET-H2CAL-1404	ICPMS High Cal2 2000ppb std 8		07/24/2014
MET-HCAL-14042	ICPMS High Cal 500ppb/10ppm s		07/24/2014
MET-ICV-140317	ICPMS ICV 100 ppb		06/15/2014
MET-IS-140416	INTERNAL STANDARD 1 PPM		07/15/2014
MET-L2CAL-14042	ICPMS Low Cal2 1/20ppb std 2		07/24/2014
MET-LCAL-140425	ICPMS Low Cal 10/200ppb std 3		07/24/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		07/24/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		07/24/2014
MET-MCAL-14042	ICPMS Mid Cal 250/5000ppb std		07/24/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140527-	250 PPM Naturals+Al+Fe PDS		08/25/2014
MET-PDS-140527-	10 PPM CUSTOM PDS SOLUTI		08/25/2014
MET-PDS-140527-	10 PPM Ag+Sb PDS		08/25/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		07/15/2014

DHL Analytical, Inc.

Run ID: **ICP-MS3_140602C** **Run No.:** 73491

CCB5-140602	1	TCLP_MET	CCB	R73491	6/2/2014 11:09:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140425	ICPMS CCV 200/5000 PPB		06/30/2014
MET-H2CAL-1404	ICPMS High Cal2 2000ppb std 8		07/24/2014
MET-HCAL-14042	ICPMS High Cal 500ppb/10ppm s		07/24/2014
MET-ICV-140317	ICPMS ICV 100 ppb		06/15/2014
MET-IS-140416	INTERNAL STANDARD 1 PPM		07/15/2014
MET-L2CAL-14042	ICPMS Low Cal2 1/20ppb std 2		07/24/2014
MET-LCAL-140425	ICPMS Low Cal 10/200ppb std 3		07/24/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		07/24/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		07/24/2014
MET-MCAL-14042	ICPMS Mid Cal 250/5000ppb std		07/24/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140527-	250 PPM Naturals+Al+Fe PDS		08/25/2014
MET-PDS-140527-	10 PPM CUSTOM PDS SOLUTI		08/25/2014
MET-PDS-140527-	10 PPM Ag+Sb PDS		08/25/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		07/15/2014

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		CALBEG	Start of CALIB						
2	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
3	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
4	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
5	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
6	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
7	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
8	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		1/20 ppb STD.	CAL ICPMS_TW	Level 2				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		10/200 ppb STD.	CAL ICPMS_TW	Level 3				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		50/1000 ppb STD.	CAL ICPMS_TW	Level 4				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		100/2000 ppb STD.	CAL ICPMS_TW	Level 5				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		250/5000 ppb STD.	CAL ICPMS_TW	Level 6				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		500/10000 ppb STD.	CAL ICPMS_TW	Level 7				
15	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		2000/25000 ppb STD.	CAL ICPMS_TW	Level 8				
16	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
17	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
18		Keyword		CALEND	End of CALIB						
19		Keyword		ICSBEG	Start of ICS						
20	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-140602	ICSAICPMS_TW	1.000				
21	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-140602	ICSBICPMS_TW	1.000				
22	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
23	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
24		Keyword		ICSEND	End of ICS						
25		Keyword		SMPLBEG	Start of SMPL						

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
26	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-140602	ICV ICPMS_TW	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-140602	ICV ICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	2101		ICB1-140602	ICB ICPMS_TW	1.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		ILCVL-140602	LCVL6020A_W	1.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1105		ICB1-140602	ICB ICPMS_TW	1.000				
31	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2201		MB-63869	MBLK200.8DW	1.000				
32	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2202		LCS-63869	LCS 200.8DW	1.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2203		LCSD-63869	LCSD200.8DW	1.000				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2204		1405325-01A	SAMP200.8DW	1.000				
36	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2205		1405325-02A	SAMP200.8DW	1.000				
37	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2206		1405325-01A MS	MS_200.8DW	1.000				
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-140602	CCV ICPMS_TW	1.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB1-140602	CCB ICPMS_TW	1.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL1-140602	LCVL6020A_W	1.000				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-140602	CCB ICPMS_TW	1.000				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2301		MB-63866	MBLK200.8DISS	1.000				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2302		FB-63866-1	MBLK200.8DISS	1.000				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2303		FB-63866-2	MBLK200.8DISS	1.000				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2304		LCS-63866	LCS 200.8DISS	1.000				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2305		LCSD-63866	LCSD200.8DISS	1.000				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2306		1405308-01C	SAMP200.8DISS	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
49	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2307		1405308-01C SD	SD 200.8DISS	5.000				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2308		1405272-01B	SAMP200.8DISS	1.000				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2309		1405317-01C	SAMP200.8DISS	1.000				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2310		1405308-01C PDS	PDS 200.8DISS	1.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2311		1405308-01C MS	MS 200.8DISS	1.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2312		1405308-01C MSD	MSD 200.8DISS	1.000				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-140602	CCV ICPMS_TW	1.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB2-140602	CCB ICPMS_TW	1.000				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL2-140602	LCVL6020A_W	1.000				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-140602	CCB ICPMS_TW	1.000				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3101		MB-63883	MBLKICPMS_TS	5.000				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3102		LCS-63883	LCS ICPMS_TS	5.000				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3103		LCSD-63883	LCSDICPMS_TS	5.000				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3104		1405239-01A	SAMPICPMS_TS	5.000				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3105		1405239-01A SD	SD 6020A_S	25.00				
65	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3106		1405330-01A	SAMPICPMS_TS	5.000				
66	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3107		1405131-42B	SAMPICPMS_TS	5.000				
67	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3108		1405131-43B	SAMPICPMS_TS	5.000				
68	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3109		1405131-44B	SAMPICPMS_TS	5.000				
69	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3110		1405239-02A	SAMPICPMS_TS	5.000				
70	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3111		1405239-03A	SAMPICPMS_TS	5.000				
71	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3112		1405239-04A	SAMPICPMS_TS	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
72	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3201		1405239-05A	SAMPICPMS_TS	5.000				
73	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3202		1405239-06A	SAMPICPMS_TS	5.000				
74	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3203		1405239-01A PDS	PDS ICPMS_TS	5.000				
75	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3204		1405239-01A MS	MS_ICPMS_TS	5.000				
76	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3205		1405239-01A MSD	MSD ICPMS_TS	5.000				
77	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-140602	CCV ICPMS_TW	1.000				
78	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	2112		CCV3-140602	CCV ICPMS_TW	1.000				
79	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB3-140602	CCB ICPMS_TW	1.000				
80	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB3-140602	CCB ICPMS_TW	1.000				
81	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL3-140602	LCVL6020A_W	1.000				
82	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL3-140602	LCVL6020A_W	1.000				
83	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB3-140602	CCB ICPMS_TW	1.000				
84	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-140602	CCB ICPMS_TW	1.000				
85	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3206		1405239-07A	SAMPICPMS_TS	5.000				
86	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3207		1405239-08A	SAMPICPMS_TS	5.000				
87	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3208		1405239-09A	SAMPICPMS_TS	5.000				
88	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3209		1405239-10A	SAMPICPMS_TS	5.000				
89	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3210		1405239-11A	SAMPICPMS_TS	5.000				
90	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3211		1405239-12A	SAMPICPMS_TS	5.000				
91	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3212		1405239-13A	SAMPICPMS_TS	5.000				
92	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3301		1405239-14A	SAMPICPMS_TS	5.000				
93	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3302		1405239-15A	SAMPICPMS_TS	5.000				
94	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3303		1405239-16A	SAMPICPMS_TS	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
95	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-140602	CCV ICPMS_TW	1.000				
96	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	2112		CCV4-140602	CCV ICPMS_TW	1.000				
97	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1306		CCV4-140602	CCV ICPMS_TW	1.000				
98	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB4-140602	CCB ICPMS_TW	1.000				
99	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB4-140602	CCB ICPMS_TW	1.000				
100	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL4-140602	LCVL6020A_W	1.000				
101	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL4-140602	LCVL6020A_W	1.000				
102	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB4-140602	CCB ICPMS_TW	1.000				
103	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB4-140602	CCB ICPMS_TW	1.000				
104	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2401		MB-63877	MBLK6020A_W	1.000				
105	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2402		MB-63783 TCLP	MBLKTCLP_MET	1.000				
106	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2403		LCS-63877	LCS 6020A_W	1.000				
107	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2404		LCSD-63877	LCSD6020A_W	1.000				
108	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
109	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2405		1405261-24A	SAMP6020A_W	1.000				
110	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2406		1405261-24A SD	SD 6020A_W	5.000				
111	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2407		1405284-01B	SAMPTCLP_MET	1.000				
112	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2408		1405276-51C	SAMPTCLP_MET	1.000				
113	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2409		1405261-17A	SAMP6020A_W	1.000				
114	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2410		1405261-18A	SAMP6020A_W	1.000				
115	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2411		1405261-19A	SAMP6020A_W	1.000				
116	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2412		1405261-20A	SAMP6020A_W	1.000				
117	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2501		1405261-21A	SAMP6020A_W	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
118	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2502		1405261-22A	SAMP6020A_W	1.000				
119	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2503		1405261-23A	SAMP6020A_W	1.000				
120	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2504		1405261-24A PDS	PDS 6020A_W	1.000				
121	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2505		1405261-24A MS	MS_6020A_W	1.000				
122	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2506		1405261-24A MSD	MSD 6020A_W	1.000				
123	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV5-140602	CCV ICPMS_TW	1.000				
124	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	2112		CCV5-140602	CCV ICPMS_TW	1.000				
125	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1306		CCV5-140602	CCV ICPMS_TW	1.000				
126	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB5-140602	CCB ICPMS_TW	1.000				
127	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB5-140602	CCB ICPMS_TW	1.000				
128	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL5-140602	LCVL6020A_W	1.000				
129	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL5-140602	LCVL6020A_W	1.000				
130	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB5-140602	CCB ICPMS_TW	1.000				
131	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-140602	CCB ICPMS_TW	1.000				
132		Keyword		StandBy							
133		Keyword		SMPLEND	End of SMPL						
134		Keyword		End	End of Sequence						
135		Keyword		CCVBEG	Start of CCV						
136		Keyword		CCVEND	End of CCV						
137		Keyword		BLKBEG	Start of BLANK						
138		Keyword		BLKEND	End of BLANK						
139		Keyword		ERRBEG	Start of ERRTERM						
140		Keyword		ERREND	End of ERRTERM						

DHL ANALYTICAL

EXTRACTION LOG - TCLP/SPLP

DHL WORK ORDER #: 1405276, 1405284 ANALYST/DATE: 05-27-2014 JAL

BATCH #: ~~63784~~, JAL 5-27-14 63783, 63785 REVIEWER/DATE:

MATRIX	EPA METHOD	REAGENTS	Fluid pH Check (meter must be calibrated)
SOIL	1311 (TCLP) CMLC	TCLP #1 8177	TCLP #1 (4.88-4.98): 4.920
OTHER Rocks	100g sample required	TCLP #2	TCLP #2 (2.83-2.93): —
BALANCE # 23,28	1312 (SPLP) —	SPLP #1 —	SPLP West (4.95-5.05): —
	100g sample required	SPLP #2 (rare) —	SPLP East (4.95-5.05): —

CALIBRATION CHECK

pH METER ID#: #2 (ORION A211)

JAL 5-27-14 Avg. Slope 93.1% (92-102%)

140418 PH ~~140818~~-12

PH: 12.547

DHL Lot # (Standards)	Standard ID	pH Reading √
PH140421	pH 2.0	1.677
PH140418-4	pH 4.0	4.006
PH140418-7	pH 7.0	7.008
PH140418-10	pH 10.0	10.055
~~PH130210~~ JAL 5-27-14	pH 12.0	~~12.592~~

Analyst: JAL

Date/Time: ~~05-27-15~~ 13:30 05-27-14 JAL 5-27-2014

	DATE:	TIME: (16-20 HR)	TUMBLER: (28-32 RPM)	TEMP: (21-25°C)
TUMBLER ON:	05-27-2014	16:30	30	21.9 °C
TUMBLER OFF:	05-28-2014	9:26	30	23.6°C
MIN/MAX TEMP:	21.6°C	23.6°C	---	(21-25°C)

REVIEWED
By Evelyn Ferrero at 4:46:56 PM, 6/3/2014

FOR pH ANALYSES / FOR EXTRACTION

SAMPLE ID *Place Note on PBR if <100g*	SAMPLE WEIGHT (g)	INITIAL pH	SECONDARY pH	EXT. FLUID #	SAMPLE WEIGHT (g)	FLUID VOL (mL)	Container Type	% Solids	Final pH
MB-63783/63785	—	—	—	#1	—	958	P / G / Z	—	4.902
1405276-51C	4.97	9.251	1.788	#1	100.02	2000mL	P / G / Z	10007.	6.639
1405284-013	4.99	9.357	1.224	#1	101.02	2020mL	(P) / G / Z	10007.	6.652
							P / G / Z		
							P / G / Z		
							P / G / Z		
							P / G / Z		
							P / G / Z		
							P / G / Z		
							P / G / Z		
							P / G / Z		

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/30/2014 8:29:00 AM**
Digestion: **Start: 5/30/2014 9:40:00 AM / Stop: 5/30/2014 2:35:00 PM**
Prep End Date: **5/30/2014 3:39:10 PM**

Prep Batch **63877** Prep Code: **3005A** Technician: **Ryan Oliver**

Prep Factor Units: **mL/mL**

Equipment List
Thermometer #77
Hot Block #2

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1405261-17A	Aqueous		50	50	1.000	1 of 1
1405261-18A	Aqueous		50	50	1.000	1 of 1
1405261-19A	Aqueous		50	50	1.000	1 of 1
1405261-20A	Aqueous		50	50	1.000	1 of 1
1405261-21A	Aqueous		50	50	1.000	1 of 1
1405261-22A	Aqueous		50	50	1.000	1 of 1
1405261-23A	Aqueous		50	50	1.000	1 of 1
1405261-24A	Aqueous		50	50	1.000	1 of 1
1405261-24A MS	Aqueous		50	50	1.000	of
1405261-24A MSD	Aqueous		50	50	1.000	of
1405261-24A PDS	Aqueous		50	50	1.000	of
1405261-24A SD	Aqueous		50	50	1.000	of
1405276-51C	Soil		5	50	10.000	1 of 1
1405284-01B	Soil		5	50	10.000	1 of 1
1405300-01A	Aqueous		50	50	1.000	1 of 1
1405300-02A	Aqueous		50	50	1.000	1 of 1
1405300-03A	Aqueous		50	50	1.000	1 of 1
1405300-04A	Aqueous		50	50	1.000	1 of 1
1405300-05A	Aqueous		50	50	1.000	1 of 1
1405300-06A	Aqueous		50	50	1.000	1 of 1
1405300-07A	Aqueous		50	50	1.000	1 of 1
1405300-08A	Aqueous		50	50	1.000	1 of 1
1405300-09A	Aqueous		50	50	1.000	1 of 1
1405300-10A	Aqueous		50	50	1.000	1 of 1
LCS-63877	Aqueous		50	50	1.000	of
LCSD-63877	Aqueous		50	50	1.000	of
MB-63783 TCLP			5	50	10.000	of

Number	Reagent Name	Amt	Units	Exp. Date
7684	Nitric Acid (Trace Metal Grade)	1	ml	08/07/2015
8095	Hydrochloric Acid (Trace Metal Grade)	1	ml	07/05/2016
8181	Digestion Vessels	69	ml	11/24/2014

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-140109-01	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/06/2015
MET-140109-02	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/10/2015
MET-SPIKE-140522-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	08/20/2014
MET-SPIKE-140522-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MS	0.2	06/22/2014
MET-SPIKE-140522-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	06/22/2014

REVIEWED
By Evelyn Ferrero at 4:45:49 PM, 6/3/2014

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/30/2014 8:29:00 AM**
Digestion: **Start: 5/30/2014 9:40:00 AM / Stop: 5/30/2014 2:35:00 PM**
Prep End Date: **5/30/2014 3:39:10 PM**

Prep Batch **63877** Prep Code: **3005A** Technician: **Ryan Oliver**

Prep Factor Units: **mL/mL**

Equipment List
Thermometer #77
Hot Block #2

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
MB-63877	Aqueous		50	50	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
7684	Nitric Acid (Trace Metal Grade)	1	ml	08/07/2015
8095	Hydrochloric Acid (Trace Metal Grade)	1	ml	07/05/2016
8181	Digestion Vessels	69	ml	11/24/2014

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-140109-01	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/06/2015
MET-140109-02	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/10/2015
MET-SPIKE-140522-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	08/20/2014
MET-SPIKE-140522-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MS	0.2	06/22/2014
MET-SPIKE-140522-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	06/22/2014

REVIEWED
By Evelyn Ferrero at 4:45:53 PM, 6/3/2014

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/27/2014 9:18:47 AM**
Digestion: **Start: 5/27/2014 4:30:00 PM / Stop: 5/28/2014 9:26:00 AM**
Prep End Date: **5/28/2014 11:28:05 AM**

Prep Batch **63783** Prep Code: **1311LM** Technician: **John Luu**

Prep Factor Units: **mL/g**

Equipment List
Thermometer #53
pH Meter #A211
Balance # 23
Balance # 20

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1405276-51C	Soil		100	2000	20.000	1 of 1
1405284-01B	Soil		101	2020	20.000	1 of 1
MB-63783	Waste		100	958	9.580	of

Number	Reagent Name	Amt	Units	Exp. Date
7705	TCLP 47 MM FILTERS	3	filter	07/12/2014
8163	TCLP EXTRACTION FLUID CONCEN	6	vial	11/16/2014
8177	TCLP Solution #1	4978	ml	11/23/2014

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
pH 131125	pH 7.00 Buffer Second Source for CCV.		20	10/30/2015
pH 140418-10	pH 10 Buffer Solution		20	09/01/2015
pH 140418-12	pH 12 Buffer Solution		20	05/27/2015
PH 140418-4	pH 4 Buffer Solution		20	10/01/2015
pH 140418-7	pH 7 Buffer Solution		20	12/01/2015
ph 140421	pH 2.0 Buffer Solution		20	11/01/2015

REVIEWED
By Evelyn Ferrero at 4:47:02 PM, 6/3/2014

Calibration Summary Report

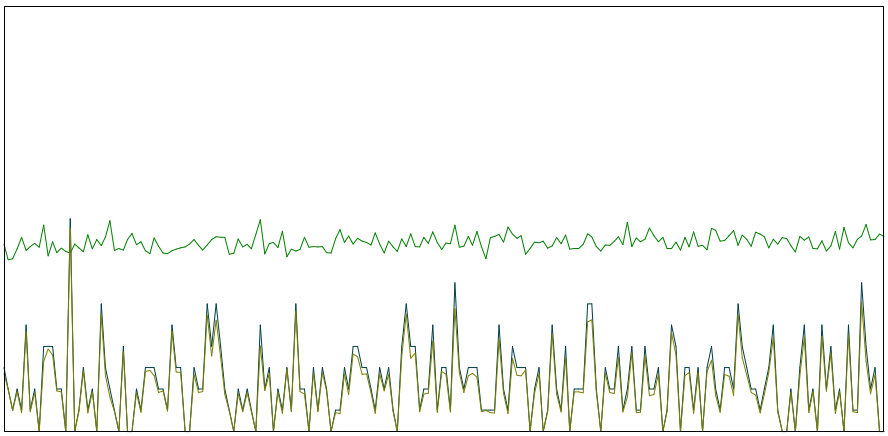
Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3Fe.c
Last Update: Jun 02 2014 12:47 pm
Cal Type: Y=aX+[blank]

Standard	Date Acquired	File
BLANK STD 1	Jun 2 2014 11:04 am	c:\icpchem\1\data\14f02k01.b\002_ccb.d\
1/20 ppb STD.	Jun 2 2014 11:16 am	c:\icpchem\1\data\14f02k01.b\004cals.d\
10/200 ppb STD.	Jun 2 2014 11:22 am	c:\icpchem\1\data\14f02k01.b\005cals.d\
50/1000 ppb STD.	Jun 2 2014 11:28 am	c:\icpchem\1\data\14f02k01.b\006cals.d\
100/2000 ppb STD.	Jun 2 2014 11:34 am	c:\icpchem\1\data\14f02k01.b\007cals.d\
250/5000 ppb STD.	Jun 2 2014 11:40 am	c:\icpchem\1\data\14f02k01.b\008cals.d\

Element Name	Corr Coef	Coef A	Coef B	Lvl 2	Lvl 6	Lvl 7	L7 %R	Lvl 8	L8 %R
Li	-0.0144	0.01636	9.627	1.21	3,446	6658		-22	
Be	0.9999	0.06053	0.00176	1.05	269	528	106%	1,990	100%
B	0.9998	0.04187	0.1756	-0.98	265	531	106%	1,990	100%
Na	1.0000	0.2224	21.17	16.43	4,960	9,868	99%	25,060	100%
Mg	1.0000	0.1017	0.105	21.07	4,929	9,794	98%	25,100	100%
Al	1.0000	0.02845	0.02041	18.81	4,990	9,992	100%	--------	######
K	1.0000	0.04971	4.908	18.34	4,979	10,010	100%	25,000	100%
Ca	1.0000	0.006811	0.1142	18.33	4,982	10,050	101%	24,980	100%
Ti	0.9998	0.02454	0.0013	0.95	272	533	107%	1,989	99%
V	1.0000	1.127	0.08096	0.93	252	496	99%	2,001	100%
Cr	1.0000	1.511	0.2491	0.99	251	490	98%	2,002	100%
Mn	1.0000	0.59	0.04022	1.08	256	502	100%	1,999	100%
Fe	0.9998	1.689	1.633	19.62	5,176	9,902	99%	--------	######
Co	1.0000	3.949	0.05195	0.96	248	487	97%	2,004	100%
Ni	1.0000	1.097	0.1308	1.05	259	502	100%	1,998	100%
Cu	1.0000	3.183	1.997	0.87	252	489	98%	2,002	100%
Zn	1.0000	0.3308	0.1841	0.98	257	500	100%	1,999	100%
As	1.0000	0.177	0.02224	0.90	252	499	100%	2,000	100%
Se	1.0000	0.008741	0.003443	0.92	248	496	99%	2,001	100%
Sr	0.9998	0.2551	0.01008	1.00	271	534	107%	1,988	99%
Mo	1.0000	0.05023	0.003213	0.87	258	515	103%	1,995	100%
Ag	1.0000	0.1295	0.001145	0.95	249	500	100%	--------	######
Cd	0.9999	0.02644	0.0001632	0.97	246	481	96%	2,005	100%
Sn	0.9999	0.07542	0.01149	0.92	262	519	104%	1,993	100%
Sb	0.9999	0.1034	0.003213	0.90	245	503	101%	--------	######
Ba	1.0000	0.03831	0.001407	0.90	244	484	97%	2,005	100%
Tl	1.0000	0.2715	0.009012	0.89	262	509	102%	1,996	100%
Pb	1.0000	0.3733	0.0161	0.92	247	501	100%	2,000	100%

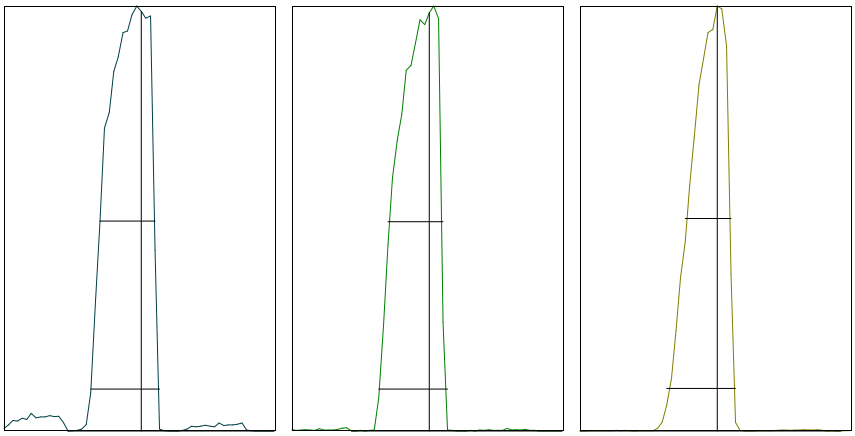
Tune Report

Tune File : He.U
Comment :



Integration Time: 0.1000 sec
Sampling Period: 0.2000 sec
n: 200
Oxide: 156/140 0.245%
Doubly Charged: 70/140 1.382%

m/z	Range	Count	Mean	RSD%	Background
51	20	0.0	2.3	74.27	0.10
59	5,000	2296.0	2221.1	3.99	0.10
51/59	1	---	0.105%	74.25	



m/z:	59	89	205
Height:	2,281	1,050	6,188
Axis:	59.05	89.05	205.05
W-50%:	0.60	0.60	0.50
W-10%:	0.7500	0.7500	0.7500

Integration Time: 0.1000 sec
Acquisition Time: 22.5600 sec

Y axis : Linear

Generated : Jun 02, 2014 09:36:10
Printed : Jun 02, 2014 09:36:12

Tune Report

Tune File : He.U
Comment :

Tuning Parameters

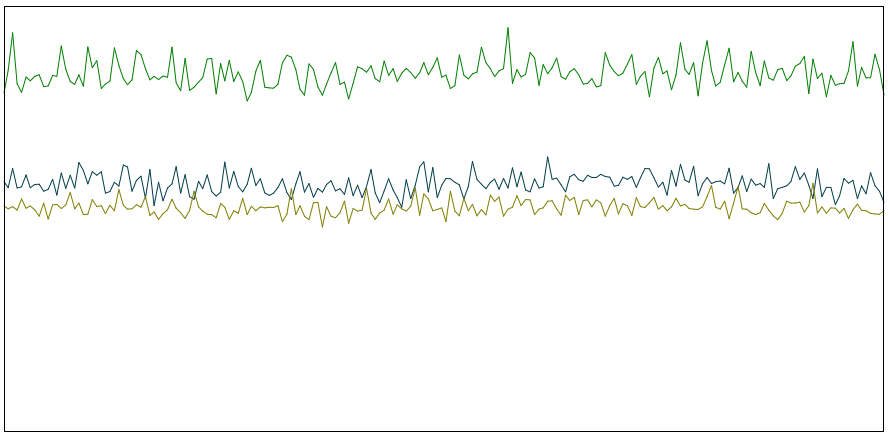
===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1550	W	Extract 1	:	0	V	AMU Gain	:	121	
RF Matching	:	1.7	V	Extract 2	:	-150	V	AMU Offset	:	121	
Smpl Depth	:	10	mm	Omega Bias-ce	:	-30	V	Axis Gain	:	0.9993	
Torch-H	:	-0.3	mm	Omega Lens-ce	:	2	V	Axis Offset	:	-0.06	
Torch-V	:	1.1	mm	Cell Entrance	:	-40	V	QP Bias	:	-17	V
Carrier Gas	:	1.15	L/min	QP Focus	:	-9	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1710	V
Sample Pump	:	---	rps	OctP RF	:	200	V	Pulse HV	:	1170	V
S/C Temp	:	2	degC	OctP Bias	:	-18	V				

===Reaction Cell===											
Reaction Mode	:	ON									
H2 Gas	:	0	mL/min	He Gas	:	4.8	mL/min	Optional Gas	:	---	%

Generated : Jun 02, 2014 09:36:10
Printed : Jun 02, 2014 09:36:14

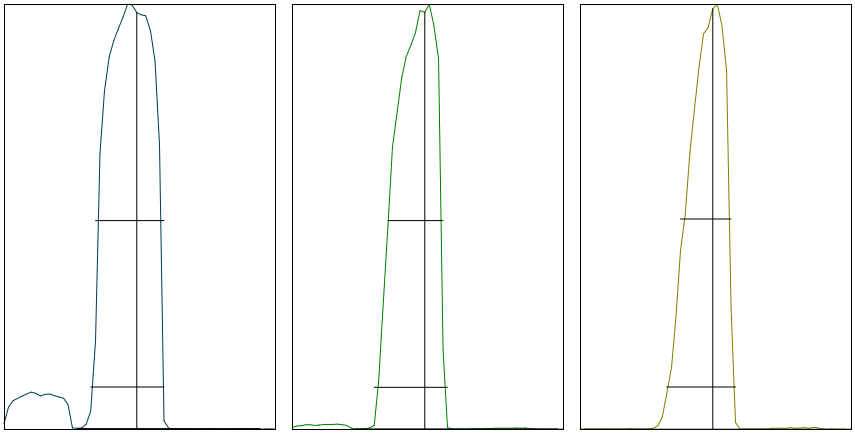
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.8200 sec	
n:	200	
Oxide:	156/140	0.906%
Doubly Charged:	70/140	1.628%

m/z	Range	Count	Mean	RSD%	Background
7	20,000	10777.0	11664.3	3.98	3.30
89	20,000	15835.0	16848.5	3.63	3.70
205	20,000	10395.0	10538.7	3.37	7.00
156/140	2	1.004%	0.902%	9.42	
70/140	5	1.521%	1.602%	7.57	
23	100,000	52458.0	52846.9	2.14	3.00
80	500,000	269292.0	271251.7	0.90	4.40



m/z:	7	89	205
Height:	11,452	16,757	10,640
Axis:	7.00	89.00	205.00
W-50%:	0.75	0.60	0.55
W-10%:	0.800	0.800	0.7500

Integration Time:	0.1000 sec
Acquisition Time:	22.7600 sec

Y axis : Linear

Generated : Jun 02, 2014 09:25:03
Printed : Jun 02, 2014 09:25:05

Tune Report

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1550	W	Extract 1	:	0	V	AMU Gain	:	121	
RF Matching	:	1.7	V	Extract 2	:	-150	V	AMU Offset	:	121	
Smpl Depth	:	10	mm	Omega Bias-ce	:	-30	V	Axis Gain	:	0.9993	
Torch-H	:	-0.3	mm	Omega Lens-ce	:	2	V	Axis Offset	:	-0.06	
Torch-V	:	1.1	mm	Cell Entrance	:	-40	V	QP Bias	:	-4	V
Carrier Gas	:	1.15	L/min	QP Focus	:	2	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1710	V
Sample Pump	:	---	rps	OctP RF	:	200	V	Pulse HV	:	1170	V
S/C Temp	:	2	degC	OctP Bias	:	-7	V				

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

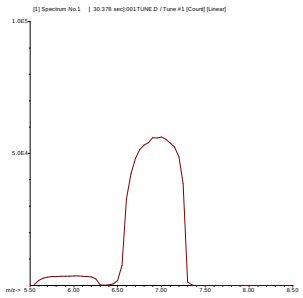
Generated : Jun 02, 2014 09:25:03
Printed : Jun 02, 2014 09:25:07

6020 QC Tune Report

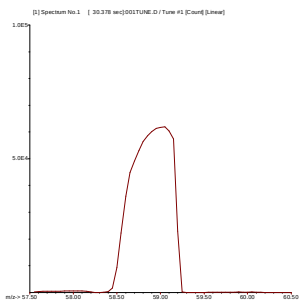
Data File: C:\ICPCHEM\1\DATA\14F02j00.B\001TUNE.D
Date Acquired: Jun 2 2014 09:53 am
Acq. Method: TN6020.M
Operator: SW
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

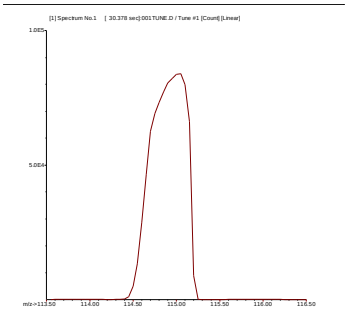
Element	Actual	Required	Flag
7 Li	2.59	5.00	
59 Co	2.41	5.00	
115 In	2.83	5.00	
205 Tl	0.86	5.00	



7 Li
Mass Calib.
Actual: 6.95
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:



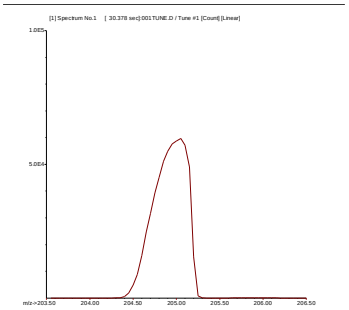
115 In

Mass Calib.

Actual:	115.00	
Required:	114.90 -	115.10
Flag:		

Peak Width

Actual:	0.55
Required:	0.90
Flag:	



205 Tl

Mass Calib.

Actual:	205.00	
Required:	204.90 -	205.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	

P/A Factor Tuning Report

Acquired:Jun 2 2014 09:40 am

Mass[amu]	Element	P/A Factor
6	Li	0.073249
23	Na	0.089276
24	Mg	0.093685
27	Al	0.096743
39	K	0.096588
44	Ca	Sensitivity too low
45	Sc	0.097415
47	Ti	Sensitivity too low
51	V	0.099861
52	Cr	0.102392
55	Mn	0.103884
59	Co	0.107343
60	Ni	0.109304
63	Cu	0.110922
66	Zn	0.110702
72	Ge	0.109711
75	As	0.108799
78	Se	Sensitivity too low
88	Sr	0.109929
95	Mo	0.108663
106	(Cd)	0.114460
107	Ag	Sensitivity too low
108	(Cd)	0.114649
111	Cd	0.115924
115	In	0.115412
118	Sn	0.115333
121	Sb	0.114961
137	Ba	Sensitivity too low
205	Tl	0.123713
206	(Pb)	0.123864
207	(Pb)	0.124055
208	Pb	0.123954
209	Bi	0.123775
238		0.123544

===Detector Parameters===
  Discriminator: 8.0 mV
      Analog HV: 1710 V
       Pulse HV: 1170 V

Calibration Blank QC Report

Acq. Method: DHL_3Fe.M Sample Name: BLANK STD 1
Operator: SW Instrument: ICPMS3
Last Cal. Update: Jun 02 2014 11:26 am
Date Acquired: Jun 2 2014 11:04 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	2907104.00	A	25070.00	0.86
7	Li	2	45	206633.50	P	3678.00	1.78
9	Be	2	45	37.78	P	12.62	33.41
11	B	2	45	3766.27	P	156.90	4.17
23	Na	1	45	7444.75	P	45.43	0.61
24	Mg	1	45	36.67	P	17.64	48.11
27	Al	1	45	7.11	P	3.36	47.19
39	K	1	45	1725.76	P	49.93	2.89
44	Ca	2	45	2450.34	P	5.78	0.24
45	Sc	1	---	70367.78	P	2099.00	2.98
45	Sc	2	---	4292461.00	A	51020.00	1.19
47	Ti	1	45	0.44	P	0.77	173.20
51	V	1	45	28.44	P	2.04	7.16
51	V	2	---		P		
52	Cr	1	45	87.56	P	9.65	11.02
55	Mn	1	45	14.22	P	10.69	75.16
56	Fe	1	72	404.46	P	80.16	19.82
59	Co	1	72	12.89	P	4.29	33.25
60	Ni	1	72	32.45	P	9.83	30.29
60	Ni	2	---		P		
63	Cu	1	72	495.13	P	23.90	4.83
63	Cu	2	---		P		
66	Zn	1	72	45.78	P	17.71	38.69
66	Zn	2	---		P		
72	Ge	1	---	49613.57	P	659.30	1.33
72	Ge	2	---		P		
75	As	1	72	5.52	P	0.50	9.08
78	Se	1	72	0.85	P	0.26	30.12
88	Sr	2	###	254.46	P	6.94	2.73
95	Mo	2	###	81.11	P	8.39	10.34
107	Ag	2	###	28.89	P	9.62	33.31
111	Cd	2	###	4.10	P	8.45	206.09
115	In	2	---	5051085.00	A	20410.00	0.40
118	Sn	2	###	290.02	P	26.04	8.98
121	Sb	2	###	81.12	P	7.70	9.49
137	Ba	2	###	35.56	P	12.62	35.49
205	Tl	2	###	182.23	P	34.05	18.69
208	Pb	2	###	325.57	P	21.43	6.58
209	Bi	2	---	4047822.00	A	45300.00	1.12

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 1/20 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jun 2 2014 11:16 am
Last Cal. Update: Jun 02 2014 11:29 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	2695905.00	A	24920.00	0.92	
7	Li	2	45	198641.30	P	898.50	0.45	
9	Be	2	45	1340.13	P	23.33	1.74	
11	B	2	45	2769.30	P	116.80	4.22	Fail
23	Na	1	45	8902.43	P	308.50	3.47	
24	Mg	1	45	805.61	P	18.96	2.35	
27	Al	1	45	199.12	P	12.67	6.36	
39	K	1	45	2086.93	P	66.93	3.21	
44	Ca	2	45	4922.28	P	199.90	4.06	
45	Sc	1	---	71700.72	P	751.80	1.05	
45	Sc	2	---	4118749.00	A	60130.00	1.46	
47	Ti	1	45	8.89	P	3.85	43.30	
51	V	1	45	404.46	P	18.20	4.50	
51	V	2	---		P			
52	Cr	1	45	627.14	P	64.01	10.21	
55	Mn	1	45	243.56	P	7.70	3.16	
56	Fe	1	72	8747.08	P	313.40	3.58	
59	Co	1	72	971.61	P	16.13	1.66	
60	Ni	1	72	321.34	P	20.96	6.52	
60	Ni	2	---		P			
63	Cu	1	72	1198.30	P	41.11	3.43	
63	Cu	2	---		P			
66	Zn	1	72	128.00	P	7.42	5.80	
66	Zn	2	---		P			
72	Ge	1	---	50329.55	P	718.10	1.43	
72	Ge	2	---		P			
75	As	1	72	45.52	P	4.46	9.80	
78	Se	1	72	2.89	P	0.51	17.63	
88	Sr	2	115	6525.36	P	142.50	2.18	
95	Mo	2	115	1162.32	P	43.51	3.74	
107	Ag	2	115	3081.63	P	143.70	4.66	
111	Cd	2	115	634.47	P	43.86	6.91	
115	In	2	---	4941432.00	A	20290.00	0.41	
118	Sn	2	115	1996.93	P	112.60	5.64	
121	Sb	2	115	2377.00	P	17.65	0.74	
137	Ba	2	115	887.85	P	34.05	3.84	
205	Tl	2	209	5009.09	P	232.60	4.64	
208	Pb	2	209	7205.67	P	167.90	2.33	
209	Bi	2	---	4016158.00	A	25310.00	0.63	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2695904.80	0.92	2907103.80	92.7	70 - 120	
45	Sc	1	71700.72	1.05	70367.78	101.9	70 - 120	
45	Sc	2	4118749.00	1.46	4292461.50	96.0	70 - 120	
72	Ge	1	50329.55	1.43	49613.57	101.4	70 - 120	
115	In	2	4941432.50	0.41	5051085.50	97.8	70 - 120	
209	Bi	2	4016157.80	0.63	4047822.50	99.2	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 10/200 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jun 2 2014 11:22 am
Last Cal. Update: Jun 02 2014 11:29 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	2734488.00	A	45010.00	1.65	
7	Li	2	45	240768.41	P	757.50	0.31	
9	Be	2	45	13017.19	P	199.00	1.53	
11	B	2	45	10951.83	P	174.90	1.60	
23	Na	1	45	22766.95	P	511.80	2.25	
24	Mg	1	45	7026.69	P	256.20	3.65	
27	Al	1	45	1966.41	P	81.56	4.15	
39	K	1	45	5369.16	P	219.60	4.09	
44	Ca	2	45	30227.79	P	346.10	1.15	
45	Sc	1	---	71657.03	P	1352.00	1.89	
45	Sc	2	---	4134321.00	A	31660.00	0.77	
47	Ti	1	45	93.34	P	8.33	8.92	
51	V	1	45	3950.91	P	81.94	2.07	
51	V	2	---		P			
52	Cr	1	45	5381.70	P	197.20	3.66	
55	Mn	1	45	2095.32	P	104.10	4.97	
56	Fe	1	72	82880.75	P	3333.00	4.02	
59	Co	1	72	9637.67	P	187.90	1.95	
60	Ni	1	72	2772.36	P	22.04	0.79	
60	Ni	2	---		P			
63	Cu	1	72	8286.93	P	279.20	3.37	
63	Cu	2	---		P			
66	Zn	1	72	888.94	P	32.51	3.66	
66	Zn	2	---		P			
72	Ge	1	---	50559.16	P	1098.00	2.17	
72	Ge	2	---		P			
75	As	1	72	433.64	P	20.34	4.69	
78	Se	1	72	20.81	P	1.19	5.71	
88	Sr	2	115	63775.57	P	470.10	0.74	
95	Mo	2	115	12079.82	P	206.70	1.71	
107	Ag	2	115	30812.82	P	163.10	0.53	
111	Cd	2	115	5980.12	P	100.90	1.69	
115	In	2	---	4971913.00	A	41900.00	0.84	
118	Sn	2	115	18811.04	P	224.30	1.19	
121	Sb	2	115	23567.53	P	312.00	1.32	
137	Ba	2	115	8744.70	P	80.09	0.92	
205	Tl	2	209	51714.43	P	667.70	1.29	
208	Pb	2	209	71890.48	P	850.50	1.18	
209	Bi	2	---	4067424.00	A	55750.00	1.37	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2734488.00	1.65	2907103.80	94.1	70 - 120	
45	Sc	1	71657.02	1.89	70367.78	101.8	70 - 120	
45	Sc	2	4134321.00	0.77	4292461.50	96.3	70 - 120	
72	Ge	1	50559.16	2.17	49613.57	101.9	70 - 120	
115	In	2	4971913.50	0.84	5051085.50	98.4	70 - 120	
209	Bi	2	4067423.80	1.37	4047822.50	100.5	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 50/1000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jun 2 2014 11:28 am
Last Cal. Update: Jun 02 2014 11:26 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	2760849.00	A	37440.00	1.36	
7	Li	2	45	443182.59	P	2965.00	0.67	
9	Be	2	45	68597.14	P	183.30	0.27	
11	B	2	45	49979.45	P	818.70	1.64	
23	Na	1	45	91455.80	P	1625.00	1.78	
24	Mg	1	45	38444.35	P	990.10	2.58	
27	Al	1	45	10834.60	P	378.70	3.50	
39	K	1	45	20843.69	P	587.20	2.82	
44	Ca	2	45	142966.80	P	1570.00	1.10	
45	Sc	1	---	76629.87	P	1156.00	1.51	
45	Sc	2	---	4209767.00	A	25030.00	0.59	
47	Ti	1	45	500.02	P	25.44	5.09	
51	V	1	45	21399.60	P	232.20	1.09	
51	V	2	---		P			
52	Cr	1	45	28575.86	P	418.20	1.46	
55	Mn	1	45	11391.18	P	100.40	0.88	
56	Fe	1	72	447628.19	P	9615.00	2.15	
59	Co	1	72	51394.57	P	820.50	1.60	
60	Ni	1	72	15183.32	P	44.28	0.29	
60	Ni	2	---		P			
63	Cu	1	72	42336.03	P	289.30	0.68	
63	Cu	2	---		P			
66	Zn	1	72	4605.38	P	71.09	1.54	
66	Zn	2	---		P			
72	Ge	1	---	52754.31	P	319.10	0.60	
72	Ge	2	---		P			
75	As	1	72	2326.37	P	63.13	2.71	
78	Se	1	72	119.78	P	7.42	6.19	
88	Sr	2	115	333348.31	P	5710.00	1.71	
95	Mo	2	115	63691.53	P	491.80	0.77	
107	Ag	2	115	160585.59	P	1845.00	1.15	
111	Cd	2	115	31940.93	P	191.30	0.60	
115	In	2	---	5044039.00	A	20100.00	0.40	
118	Sn	2	115	98894.46	P	1160.00	1.17	
121	Sb	2	115	125403.10	P	1024.00	0.82	
137	Ba	2	115	47039.50	P	1144.00	2.43	
205	Tl	2	209	271528.50	P	4068.00	1.50	
208	Pb	2	209	375107.09	P	2527.00	0.67	
209	Bi	2	---	4089725.00	A	54450.00	1.33	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2		2760849.00	1.36	2907103.80	95.0	70 -	120	
45	Sc	1		76629.87	1.51	70367.78	108.9	70 -	120	
45	Sc	2		4209767.00	0.59	4292461.50	98.1	70 -	120	
72	Ge	1		52754.31	0.60	49613.57	106.3	70 -	120	
115	In	2		5044038.50	0.40	5051085.50	99.9	70 -	120	
209	Bi	2		4089725.30	1.33	4047822.50	101.0	70 -	120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 100/2000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jun 2 2014 11:34 am
Last Cal. Update: Jun 02 2014 11:32 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	2713743.00	A	62670.00	2.31	
7	Li	2	45	675037.88	M	13850.00	2.05	
9	Be	2	45	138180.41	P	2015.00	1.46	
11	B	2	45	96451.36	P	1533.00	1.59	
23	Na	1	45	171979.09	P	767.10	0.45	
24	Mg	1	45	75094.05	P	930.20	1.24	
27	Al	1	45	21581.43	P	514.70	2.38	
39	K	1	45	38945.27	P	445.10	1.14	
44	Ca	2	45	283460.31	P	2425.00	0.86	
45	Sc	1	---	73308.47	P	1248.00	1.70	
45	Sc	2	---	4082803.00	A	50260.00	1.23	
47	Ti	1	45	964.50	P	42.93	4.45	
51	V	1	45	41829.72	P	937.50	2.24	
51	V	2	---		P			
52	Cr	1	45	56336.91	P	1705.00	3.03	
55	Mn	1	45	22444.57	P	577.00	2.57	
56	Fe	1	72	884099.00	P	26470.00	2.99	
59	Co	1	72	101118.20	P	2366.00	2.34	
60	Ni	1	72	29266.94	P	646.10	2.21	
60	Ni	2	---		P			
63	Cu	1	72	83432.01	P	1742.00	2.09	
63	Cu	2	---		P			
66	Zn	1	72	8721.88	P	164.60	1.89	
66	Zn	2	---		P			
72	Ge	1	---	50979.34	P	535.00	1.05	
72	Ge	2	---		P			
75	As	1	72	4603.16	P	96.27	2.09	
78	Se	1	72	225.63	P	4.87	2.16	
88	Sr	2	115	660614.13	P	11060.00	1.67	
95	Mo	2	115	127527.10	P	1374.00	1.08	
107	Ag	2	115	317198.91	P	3358.00	1.06	
111	Cd	2	115	63000.82	P	578.30	0.92	
115	In	2	---	4847219.00	A	29990.00	0.62	
118	Sn	2	115	193228.00	P	2606.00	1.35	
121	Sb	2	115	248239.09	P	2729.00	1.10	
137	Ba	2	115	91909.49	P	1507.00	1.64	
205	Tl	2	209	537906.31	P	7643.00	1.42	
208	Pb	2	209	738138.00	P	7101.00	0.96	
209	Bi	2	---	3959988.00	A	37950.00	0.96	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2713743.30	2.31	2907103.80	93.3	70 - 120	
45	Sc	1	73308.48	1.70	70367.78	104.2	70 - 120	
45	Sc	2	4082803.30	1.23	4292461.50	95.1	70 - 120	
72	Ge	1	50979.34	1.05	49613.57	102.8	70 - 120	
115	In	2	4847218.50	0.62	5051085.50	96.0	70 - 120	
209	Bi	2	3959988.30	0.96	4047822.50	97.8	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 250/5000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jun 2 2014 11:40 am
Last Cal. Update: Jun 02 2014 11:38 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	2536047.00	A	47910.00	1.89	
7	Li	2	45	1346758.00	A	11830.00	0.88	
9	Be	2	45	332503.59	P	4151.00	1.25	
11	B	2	45	229873.41	P	1259.00	0.55	
23	Na	1	45	403618.91	P	6809.00	1.69	
24	Mg	1	45	179965.00	P	4647.00	2.58	
27	Al	1	45	50964.63	P	1435.00	2.82	
39	K	1	45	90612.32	P	989.50	1.09	
44	Ca	2	45	694771.69	P	1494.00	0.22	
45	Sc	1	---	71794.93	P	1184.00	1.65	
45	Sc	2	---	4081803.00	A	7007.00	0.17	
47	Ti	1	45	2398.05	P	32.92	1.37	
51	V	1	45	102167.20	P	2573.00	2.52	
51	V	2	---		A			
52	Cr	1	45	136349.59	P	3934.00	2.89	
55	Mn	1	45	54230.80	P	1502.00	2.77	
56	Fe	1	72	2194703.00	A	50330.00	2.29	
59	Co	1	72	245557.59	P	4006.00	1.63	
60	Ni	1	72	71218.97	P	923.10	1.30	
60	Ni	2	---		P			
63	Cu	1	72	202115.91	P	4246.00	2.10	
63	Cu	2	---		P			
66	Zn	1	72	21382.40	P	517.70	2.42	
66	Zn	2	---		P			
72	Ge	1	---	50191.44	P	467.80	0.93	
72	Ge	2	---		P			
75	As	1	72	11197.17	P	160.40	1.43	
78	Se	1	72	543.83	P	12.10	2.23	
88	Sr	2	115	1689913.00	A	7884.00	0.47	
95	Mo	2	115	317715.09	P	1942.00	0.61	
107	Ag	2	115	789265.88	P	1063.00	0.13	
111	Cd	2	115	158795.41	P	2497.00	1.57	
115	In	2	---	4894191.00	A	39460.00	0.81	
118	Sn	2	115	483133.09	P	2794.00	0.58	
121	Sb	2	115	619606.38	P	3235.00	0.52	
137	Ba	2	115	228566.70	P	3153.00	1.38	
205	Tl	2	209	1410566.00	A	11060.00	0.78	
208	Pb	2	209	1829446.00	P	11520.00	0.63	
209	Bi	2	---	3970243.00	A	21150.00	0.53	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2		2536047.30	1.89	2907103.80	87.2	70 -	120	
45	Sc	1		71794.93	1.65	70367.78	102.0	70 -	120	
45	Sc	2		4081803.00	0.17	4292461.50	95.1	70 -	120	
72	Ge	1		50191.44	0.93	49613.57	101.2	70 -	120	
115	In	2		4894191.50	0.81	5051085.50	96.9	70 -	120	
209	Bi	2		3970242.80	0.53	4047822.50	98.1	70 -	120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 500/10000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jun 2 2014 11:46 am
Last Cal. Update: Jun 02 2014 11:44 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	2505186.00	A	36330.00	1.45	
7	Li	2	45	2444994.00	A	10260.00	0.42	
9	Be	2	45	659759.69	P	6966.00	1.06	
11	B	2	45	462547.31	P	3200.00	0.69	
23	Na	1	45	826267.38	A	10110.00	1.22	
24	Mg	1	45	371393.19	P	8200.00	2.21	
27	Al	1	45	105990.50	P	3055.00	2.88	
39	K	1	45	187456.59	P	4036.00	2.15	
44	Ca	2	45	1414652.00	A	8413.00	0.59	
45	Sc	1	---	74568.22	P	1140.00	1.53	
45	Sc	2	---	4125580.00	A	31070.00	0.75	
47	Ti	1	45	4876.15	P	78.33	1.61	
51	V	1	45	208403.41	P	4696.00	2.25	
51	V	2	---		A			
52	Cr	1	45	275783.19	P	5549.00	2.01	
55	Mn	1	45	110474.80	P	2520.00	2.28	
56	Fe	1	72	4315956.00	A	99680.00	2.31	
59	Co	1	72	495730.59	P	7040.00	1.42	
60	Ni	1	72	142064.59	P	1904.00	1.34	
60	Ni	2	---		P			
63	Cu	1	72	402123.09	P	6523.00	1.62	
63	Cu	2	---		A			
66	Zn	1	72	42756.76	P	826.30	1.93	
66	Zn	2	---		P			
72	Ge	1	---	51599.47	P	191.20	0.37	
72	Ge	2	---		P			
75	As	1	72	22795.99	P	346.40	1.52	
78	Se	1	72	1119.61	P	24.18	2.16	
88	Sr	2	115	3351925.00	A	37210.00	1.11	
95	Mo	2	115	635590.88	P	3757.00	0.59	
107	Ag	2	115	1592852.00	A	18710.00	1.17	
111	Cd	2	115	312756.59	P	2806.00	0.90	
115	In	2	---	4917897.00	A	24860.00	0.51	
118	Sn	2	115	963064.69	P	6718.00	0.70	
121	Sb	2	115	1279592.00	A	22130.00	1.73	
137	Ba	2	115	455580.00	P	6477.00	1.42	
205	Tl	2	209	2742452.00	A	21440.00	0.78	
208	Pb	2	209	3705916.00	A	32220.00	0.87	
209	Bi	2	---	3967182.00	A	24630.00	0.62	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2		2505186.50	1.45	2907103.80	86.2	70 -	120	
45	Sc	1		74568.22	1.53	70367.78	106.0	70 -	120	
45	Sc	2		4125580.30	0.75	4292461.50	96.1	70 -	120	
72	Ge	1		51599.47	0.37	49613.57	104.0	70 -	120	
115	In	2		4917897.00	0.51	5051085.50	97.4	70 -	120	
209	Bi	2		3967181.50	0.62	4047822.50	98.0	70 -	120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 2000/25000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Jun 2 2014 11:52 am
Last Cal. Update: Jun 02 2014 11:50 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	2600429.00	A	19460.00	0.75	
7	Li	2	45	189632.20	P	1229.00	0.65	Fail
9	Be	2	45	2466773.00	A	26780.00	1.09	
11	B	2	45	1709787.00	A	24850.00	1.45	
23	Na	1	45	2071327.00	A	50680.00	2.45	
24	Mg	1	45	945121.00	A	46550.00	4.93	
27	Al	1	45	242.67	P	24.69	10.17	
39	K	1	45	461781.50	P	9969.00	2.16	
44	Ca	2	45	3487584.00	A	88830.00	2.55	
45	Sc	1	---	74031.91	P	1487.00	2.01	
45	Sc	2	---	4096323.00	A	54710.00	1.34	
47	Ti	1	45	18068.46	P	523.10	2.90	
51	V	1	45	834923.38	P	23480.00	2.81	
51	V	2	---		A			
52	Cr	1	45	1120095.00	A	43380.00	3.87	
55	Mn	1	45	436553.91	P	12610.00	2.89	
56	Fe	1	72	4395.61	P	278.60	6.34	
59	Co	1	72	2015231.00	A	42210.00	2.09	
60	Ni	1	72	558454.31	P	12700.00	2.27	
60	Ni	2	---		A			
63	Cu	1	72	1623881.00	A	31430.00	1.94	
63	Cu	2	---		A			
66	Zn	1	72	168483.80	P	4551.00	2.70	
66	Zn	2	---		A			
72	Ge	1	---	50939.62	P	567.30	1.11	
72	Ge	2	---		P			
75	As	1	72	90196.56	P	2114.00	2.34	
78	Se	1	72	4456.22	P	116.60	2.62	
88	Sr	2	115	12172820.00	A	166500.00	1.37	
95	Mo	2	115	2404884.00	A	37440.00	1.56	
107	Ag	2	115	1029.02	P	375.70	36.51	
111	Cd	2	115	1272094.00	A	16490.00	1.30	
115	In	2	---	4799470.00	A	81720.00	1.70	
118	Sn	2	115	3607814.00	A	35230.00	0.98	
121	Sb	2	115	1130.13	P	361.20	31.96	
137	Ba	2	115	1842782.00	A	19250.00	1.04	
205	Tl	2	209	10355070.00	A	189100.00	1.83	
208	Pb	2	209	14266760.00	A	189100.00	1.33	
209	Bi	2	---	3821122.00	A	24910.00	0.65	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2600429.30	0.75	2907103.80	89.5	70 - 120	
45	Sc	1	74031.91	2.01	70367.78	105.2	70 - 120	
45	Sc	2	4096323.30	1.34	4292461.50	95.4	70 - 120	
72	Ge	1	50939.62	1.11	49613.57	102.7	70 - 120	
115	In	2	4799470.00	1.70	5051085.50	95.0	70 - 120	
209	Bi	2	3821121.50	0.65	4047822.50	94.4	70 - 120	

ICSA QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\013ICSA.D\013ICSA.D#

Date Acquired:	Jun 2 2014 12:10 pm	Sample Name:	**ICSA-140602**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jun 02 2014 11:57 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	-68.600	ppb	2.54	8.00	5.00	
9	Be	2	45	0.130	ppb	29.13	0.32	0.80	
11	B	2	45	10.520	ppb	3.44	30.00	30.00	
23	Na	1	45	105700.000	ppb	0.46	#######	#######	
24	Mg	1	45	107900.000	ppb	0.34	#######	#######	
27	Al	1	45	103700.000	ppb	2.12	#######	#######	
39	K	1	45	111900.000	ppb	0.67	#######	#######	
44	Ca	2	45	104100.000	ppb	2.00	#######	#######	
47	Ti	1	45	2150.000	ppb	2.20	10.00	10.00	
51	V	1	45	0.347	ppb	15.07	10.00	10.00	
52	Cr	1	45	0.741	ppb	9.67	8.00	5.00	
55	Mn	1	45	4.189	ppb	2.61	8.00	10.00	
56	Fe	1	72	94780.000	ppb	2.33	#######	#######	
59	Co	1	72	0.862	ppb	3.77	8.00	10.00	
60	Ni	1	72	0.701	ppb	1.26	8.00	10.00	
63	Cu	1	72	0.818	ppb	1.90	8.00	10.00	
66	Zn	1	72	2.198	ppb	9.84	10.00	5.00	
75	As	1	72	0.716	ppb	5.58	4.00	5.00	
78	Se	1	72	0.331	ppb	0.00	2.00	5.00	
88	Sr	2	115	0.670	ppb	9.45	10.00	10.00	
95	Mo	2	115	2095.000	ppb	0.78	8.00	5.00	
107	Ag	2	115	0.169	ppb	10.59	0.80	2.00	
111	Cd	2	115	0.428	ppb	22.96	1.20	1.00	
118	Sn	2	115	0.476	ppb	6.19	10.00	10.00	
121	Sb	2	115	0.723	ppb	7.71	4.00	2.50	
137	Ba	2	115	0.464	ppb	13.84	8.00	10.00	
205	Tl	2	209	0.649	ppb	13.33	4.00	1.50	
208	Pb	2	209	0.612	ppb	13.76	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2167189.30	1.67	2907103.80	74.5	70 - 120	
45	Sc	1	71605.38	1.01	70367.78	101.8	70 - 120	
45	Sc	2	3726060.00	1.30	4292461.50	86.8	70 - 120	
72	Ge	1	49079.61	1.08	49613.57	98.9	70 - 120	
115	In	2	4412014.50	1.02	5051085.50	87.3	70 - 120	
209	Bi	2	3541395.00	1.55	4047822.50	87.5	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\014ICSB.D\014ICSB.D#

Date Acquired:	Jun 2 2014 12:16 pm	Sample Name:	**ICSAB-140602**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jun 02 2014 11:57 am		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	-108.90	ppb	0.72	---	80 -	120		
9	Be	2	45	0.14	ppb	33.51	---	80 -	120		
11	B	2	45	5.09	ppb	2.59	---	80 -	120		
23	Na	1	45	107200.00	ppb	2.96	100000.00	80 -	120		
24	Mg	1	45	109800.00	ppb	2.69	100000.00	80 -	120		
27	Al	1	45	103200.00	ppb	6.00	100000.00	80 -	120		
39	K	1	45	114100.00	ppb	2.33	100000.00	80 -	120		
44	Ca	2	45	105400.00	ppb	1.10	100000.00	80 -	120		
47	Ti	1	45	2212.00	ppb	3.73	---	80 -	120		
51	V	1	45	42.61	ppb	4.25	40.00	80 -	120		
52	Cr	1	45	21.24	ppb	2.90	20.00	80 -	120		
55	Mn	1	45	24.74	ppb	3.10	20.00	80 -	120		Fail
56	Fe	1	72	95260.00	ppb	4.47	100000.00	80 -	120		
59	Co	1	72	40.91	ppb	2.49	40.00	80 -	120		
60	Ni	1	72	40.79	ppb	3.62	40.00	80 -	120		
63	Cu	1	72	19.33	ppb	3.60	20.00	80 -	120		
66	Zn	1	72	21.54	ppb	2.10	20.00	80 -	120		
75	As	1	72	21.28	ppb	2.95	20.00	80 -	120		
78	Se	1	72	20.51	ppb	7.06	20.00	80 -	120		
88	Sr	2	115	0.60	ppb	8.79	---	80 -	120		
95	Mo	2	115	2127.00	ppb	1.05	---	80 -	120		
107	Ag	2	115	18.95	ppb	1.39	20.00	80 -	120		
111	Cd	2	115	10.22	ppb	1.56	10.00	80 -	120		
118	Sn	2	115	0.37	ppb	14.04	---	80 -	120		
121	Sb	2	115	1.00	ppb	4.57	---	80 -	120		
137	Ba	2	115	0.43	ppb	23.82	---	80 -	120		
205	Tl	2	209	0.44	ppb	16.57	---	80 -	120		
208	Pb	2	209	0.42	ppb	13.31	---	80 -	120		

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	1910643.90	1.19	2907103.80	65.7	70 -	120		ISFail
45	Sc	1	64561.47	2.30	70367.78	91.7	70 -	120		
45	Sc	2	3544937.00	0.80	4292461.50	82.6	70 -	120		
72	Ge	1	46024.11	1.99	49613.57	92.8	70 -	120		
115	In	2	4349323.00	1.57	5051085.50	86.1	70 -	120		
209	Bi	2	3505209.00	0.18	4047822.50	86.6	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\018ICV.D\018ICV.D#

Date Acquired:	Jun 2 2014 12:41 pm	Sample Name:	**ICV1-140602**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	-145.20	ppb	1.07	100.00	90 -	110	-145.2	Fail
9	Be	2	45	90.62	ppb	0.28	100.00	90 -	110	90.6	
11	B	2	45	81.65	ppb	1.11	100.00	90 -	110	81.7	Fail
23	Na	1	45	2574.00	ppb	0.99	2500.00	90 -	110	103.0	
24	Mg	1	45	2567.00	ppb	1.62	2500.00	90 -	110	102.7	
27	Al	1	45	2343.00	ppb	2.61	2500.00	90 -	110	93.7	
39	K	1	45	2675.00	ppb	0.65	2500.00	90 -	110	107.0	
44	Ca	2	45	2575.00	ppb	0.48	2500.00	90 -	110	103.0	
47	Ti	1	45	98.07	ppb	2.63	100.00	90 -	110	98.1	
51	V	1	45	97.69	ppb	1.52	100.00	90 -	110	97.7	
52	Cr	1	45	99.64	ppb	1.01	100.00	90 -	110	99.6	
55	Mn	1	45	102.40	ppb	3.76	100.00	90 -	110	102.4	
56	Fe	1	72	2333.00	ppb	2.91	2500.00	90 -	110	93.3	
59	Co	1	72	94.22	ppb	1.88	100.00	90 -	110	94.2	
60	Ni	1	72	96.76	ppb	3.13	100.00	90 -	110	96.8	
63	Cu	1	72	93.99	ppb	2.17	100.00	90 -	110	94.0	
66	Zn	1	72	99.80	ppb	1.51	100.00	90 -	110	99.8	
75	As	1	72	96.55	ppb	1.85	100.00	90 -	110	96.6	
78	Se	1	72	97.91	ppb	1.73	100.00	90 -	110	97.9	
88	Sr	2	115	97.98	ppb	0.71	100.00	90 -	110	98.0	
95	Mo	2	115	92.51	ppb	0.37	100.00	90 -	110	92.5	
107	Ag	2	115	92.68	ppb	0.37	100.00	90 -	110	92.7	
111	Cd	2	115	97.51	ppb	1.16	100.00	90 -	110	97.5	
118	Sn	2	115	100.40	ppb	0.52	100.00	90 -	110	100.4	
121	Sb	2	115	92.24	ppb	0.50	100.00	90 -	110	92.2	
137	Ba	2	115	95.90	ppb	1.18	100.00	90 -	110	95.9	
205	Tl	2	209	97.33	ppb	0.85	100.00	90 -	110	97.3	
208	Pb	2	209	97.13	ppb	0.46	100.00	90 -	110	97.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	1614099.50	2.03	2907103.80	55.5	70 -	120		ISFail
45	Sc	1	65405.64	0.62	70367.78	92.9	70 -	120		
45	Sc	2	3245496.30	1.04	4292461.50	75.6	70 -	120		
72	Ge	1	48048.06	2.25	49613.57	96.8	70 -	120		
115	In	2	4845137.50	0.53	5051085.50	95.9	70 -	120		
209	Bi	2	4181167.50	0.62	4047822.50	103.3	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\020LCVL.D\020LCVL.D#

Date Acquired:	Jun 2 2014 12:54 pm	Sample Name:	**ILCVL-140602**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	-108.20	ppb	0.36	5.00	70 -	130	######	Fail
9	Be	2	45	1.08	ppb	5.23	1.00	70 -	130	107.5	
11	B	2	45	16.41	ppb	1.58	20.00	70 -	130	82.1	
23	Na	1	45	102.20	ppb	4.17	100.00	70 -	130	102.2	
24	Mg	1	45	107.50	ppb	3.86	100.00	70 -	130	107.5	
27	Al	1	45	98.37	ppb	2.93	100.00	70 -	130	98.4	
39	K	1	45	108.40	ppb	0.19	100.00	70 -	130	108.4	
44	Ca	2	45	104.50	ppb	3.60	100.00	70 -	130	104.5	
47	Ti	1	45	5.78	ppb	15.98	5.00	70 -	130	115.7	
51	V	1	45	1.06	ppb	3.84	1.00	70 -	130	105.7	
52	Cr	1	45	5.04	ppb	2.97	5.00	70 -	130	100.8	
55	Mn	1	45	5.15	ppb	6.86	5.00	70 -	130	103.0	
56	Fe	1	72	94.01	ppb	3.42	100.00	70 -	130	94.0	
59	Co	1	72	4.64	ppb	4.04	5.00	70 -	130	92.9	
60	Ni	1	72	5.10	ppb	4.15	5.00	70 -	130	102.1	
63	Cu	1	72	4.49	ppb	1.23	5.00	70 -	130	89.8	
66	Zn	1	72	4.87	ppb	5.02	5.00	70 -	130	97.5	
75	As	1	72	4.76	ppb	2.63	5.00	70 -	130	95.2	
78	Se	1	72	4.66	ppb	3.11	5.00	70 -	130	93.3	
88	Sr	2	115	4.86	ppb	1.25	5.00	70 -	130	97.3	
95	Mo	2	115	4.85	ppb	3.77	5.00	70 -	130	97.0	
107	Ag	2	115	1.81	ppb	1.80	2.00	70 -	130	90.7	
111	Cd	2	115	1.01	ppb	7.85	1.00	70 -	130	101.2	
118	Sn	2	115	5.12	ppb	2.52	5.00	70 -	130	102.4	
121	Sb	2	115	1.79	ppb	4.67	2.00	70 -	130	89.4	
137	Ba	2	115	4.70	ppb	5.04	5.00	70 -	130	93.9	
205	Tl	2	209	1.13	ppb	2.73	1.00	70 -	130	113.1	
208	Pb	2	209	1.01	ppb	2.64	1.00	70 -	130	100.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	1814651.60	0.83	2907103.80	62.4	70 -	120		ISFail
45	Sc	1	68144.02	1.95	70367.78	96.8	70 -	120		
45	Sc	2	3356609.30	1.57	4292461.50	78.2	70 -	120		
72	Ge	1	49421.52	1.63	49613.57	99.6	70 -	120		
115	In	2	4834329.00	0.48	5051085.50	95.7	70 -	120		
209	Bi	2	4106835.00	1.37	4047822.50	101.5	70 -	120		

ICB QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\021_ICB.D\021_ICB.D#

Date Acquired:	Jun 2 2014 01:00 pm	Sample Name:	**ICB1-140602**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm	Instrument:	ICPMS3

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
7 Li 2 45	-103.60 ppb	0.40	5.00	
9 Be 2 45	-0.01 ppb	51.51	0.80	
11 B 2 45	-0.51 ppb	1.38	10.00	
23 Na 1 45	-2.26 ppb	3.29	50.00	
24 Mg 1 45	1.36 ppb	34.47	50.00	
27 Al 1 45	3.23 ppb	6.18	30.00	
39 K 1 45	4.56 ppb	4.54	50.00	
44 Ca 2 45	-3.54 ppb	5.56	50.00	
47 Ti 1 45	0.00 ppb	173.20	10.00	
51 V 1 45	0.02 ppb	17.54	10.00	
52 Cr 1 45	0.02 ppb	17.25	3.00	
55 Mn 1 45	0.01 ppb	39.63	10.00	
56 Fe 1 72	1.62 ppb	8.64	50.00	
59 Co 1 72	0.02 ppb	23.12	3.00	
60 Ni 1 72	0.02 ppb	30.74	3.00	
63 Cu 1 72	-0.17 ppb	2.08	3.00	
66 Zn 1 72	-0.09 ppb	29.22	10.00	
75 As 1 72	0.03 ppb	18.90	10.00	
78 Se 1 72	-0.10 ppb	26.95	10.00	
88 Sr 2 115	0.01 ppb	33.72	10.00	
95 Mo 2 115	0.41 ppb	10.32	10.00	
107 Ag 2 115	0.01 ppb	37.21	2.00	
111 Cd 2 115	0.01 ppb	120.94	1.00	
118 Sn 2 115	0.03 ppb	6.57	10.00	
121 Sb 2 115	0.02 ppb	32.81	1.00	
137 Ba 2 115	0.02 ppb	46.46	3.00	
205 Tl 2 209	0.12 ppb	13.16	1.00	
208 Pb 2 209	0.03 ppb	17.52	1.00	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li 2	1872070.60	0.85	2907103.80	64.4	70 - 120	ISFail
45 Sc 1	66630.29	2.31	70367.78	94.7	70 - 120	
45 Sc 2	3459102.80	1.26	4292461.50	80.6	70 - 120	
72 Ge 1	48566.56	1.17	49613.57	97.9	70 - 120	
115 In 2	4815736.00	1.26	5051085.50	95.3	70 - 120	
209 Bi 2	4072658.80	0.66	4047822.50	100.6	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\086CCV1.D\086CCV1.D#

Date Acquired:	Jun 2 2014 07:31 pm	Sample Name:	**CCV4-140602**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	2693.00	ppb	0.07	200.00	90 -	110	1346.5	Fail
9	Be	2	45	202.10	ppb	0.48	200.00	90 -	110	101.1	
11	B	2	45	217.20	ppb	0.60	200.00	90 -	110	108.6	
23	Na	1	45	4639.00	ppb	1.71	5000.00	90 -	110	92.8	
24	Mg	1	45	4695.00	ppb	2.73	5000.00	90 -	110	93.9	
27	Al	1	45	5014.00	ppb	3.47	5000.00	90 -	110	100.3	
39	K	1	45	5074.00	ppb	2.20	5000.00	90 -	110	101.5	
44	Ca	2	45	5050.00	ppb	0.79	5000.00	90 -	110	101.0	
47	Ti	1	45	218.00	ppb	2.84	200.00	90 -	110	109.0	
51	V	1	45	199.80	ppb	1.98	200.00	90 -	110	99.9	
52	Cr	1	45	198.00	ppb	3.08	200.00	90 -	110	99.0	
55	Mn	1	45	211.00	ppb	2.79	200.00	90 -	110	105.5	
56	Fe	1	72	5256.00	ppb	3.74	5000.00	90 -	110	105.1	
59	Co	1	72	199.70	ppb	2.39	200.00	90 -	110	99.9	
60	Ni	1	72	207.20	ppb	2.62	200.00	90 -	110	103.6	
63	Cu	1	72	200.70	ppb	2.10	200.00	90 -	110	100.4	
66	Zn	1	72	203.50	ppb	1.68	200.00	90 -	110	101.8	
75	As	1	72	201.40	ppb	2.64	200.00	90 -	110	100.7	
78	Se	1	72	215.50	ppb	4.61	200.00	90 -	110	107.8	
88	Sr	2	115	230.40	ppb	0.95	200.00	90 -	110	115.2	Fail
95	Mo	2	115	208.50	ppb	1.02	200.00	90 -	110	104.3	
107	Ag	2	115	202.80	ppb	0.97	200.00	90 -	110	101.4	
111	Cd	2	115	198.70	ppb	0.96	200.00	90 -	110	99.4	
118	Sn	2	115	209.90	ppb	1.43	200.00	90 -	110	105.0	
121	Sb	2	115	186.80	ppb	1.13	200.00	90 -	110	93.4	
137	Ba	2	115	193.30	ppb	0.82	200.00	90 -	110	96.7	
205	Tl	2	209	212.70	ppb	0.93	200.00	90 -	110	106.4	
208	Pb	2	209	202.00	ppb	1.19	200.00	90 -	110	101.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3097343.50	0.73	2907103.80	106.5	70 -	120		
45	Sc	1	81726.55	0.98	70367.78	116.1	70 -	120		
45	Sc	2	5029024.50	0.53	4292461.50	117.2	70 -	120		
72	Ge	1	57062.67	0.94	49613.57	115.0	70 -	120		
115	In	2	5738083.50	1.60	5051085.50	113.6	70 -	120		
209	Bi	2	4355861.00	0.79	4047822.50	107.6	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\092LCVL.D\092LCVL.D#

Date Acquired:	Jun 2 2014 08:07 pm	Sample Name:	**LCVL4-140602**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	7.16	ppb	0.43	5.00	70 -	130	143.1	Fail
9	Be	2	45	1.00	ppb	2.78	1.00	70 -	130	99.5	
11	B	2	45	19.19	ppb	0.38	20.00	70 -	130	96.0	
23	Na	1	45	43.36	ppb	2.19	100.00	70 -	130	43.4	Fail
24	Mg	1	45	104.80	ppb	2.01	100.00	70 -	130	104.8	
27	Al	1	45	96.12	ppb	4.88	100.00	70 -	130	96.1	
39	K	1	45	97.73	ppb	5.68	100.00	70 -	130	97.7	
44	Ca	2	45	103.90	ppb	1.87	100.00	70 -	130	103.9	
47	Ti	1	45	5.18	ppb	26.12	5.00	70 -	130	103.7	
51	V	1	45	0.99	ppb	3.57	1.00	70 -	130	99.2	
52	Cr	1	45	4.90	ppb	3.01	5.00	70 -	130	98.0	
55	Mn	1	45	5.07	ppb	3.97	5.00	70 -	130	101.5	
56	Fe	1	72	95.64	ppb	3.41	100.00	70 -	130	95.6	
59	Co	1	72	4.89	ppb	4.03	5.00	70 -	130	97.8	
60	Ni	1	72	5.25	ppb	2.05	5.00	70 -	130	105.1	
63	Cu	1	72	4.74	ppb	1.89	5.00	70 -	130	94.9	
66	Zn	1	72	4.94	ppb	8.84	5.00	70 -	130	98.8	
75	As	1	72	4.85	ppb	3.43	5.00	70 -	130	96.9	
78	Se	1	72	5.36	ppb	4.54	5.00	70 -	130	107.3	
88	Sr	2	115	5.17	ppb	2.82	5.00	70 -	130	103.3	
95	Mo	2	115	4.57	ppb	4.18	5.00	70 -	130	91.4	
107	Ag	2	115	1.81	ppb	3.54	2.00	70 -	130	90.3	
111	Cd	2	115	1.01	ppb	8.38	1.00	70 -	130	100.7	
118	Sn	2	115	4.88	ppb	2.98	5.00	70 -	130	97.5	
121	Sb	2	115	1.71	ppb	1.04	2.00	70 -	130	85.4	
137	Ba	2	115	4.34	ppb	1.99	5.00	70 -	130	86.8	
205	Tl	2	209	1.03	ppb	4.04	1.00	70 -	130	102.7	
208	Pb	2	209	0.98	ppb	2.96	1.00	70 -	130	97.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3455011.50	1.78	2907103.80	118.8	70 -	120		
45	Sc	1	79490.18	1.48	70367.78	113.0	70 -	120		
45	Sc	2	5039627.50	1.89	4292461.50	117.4	70 -	120		
72	Ge	1	55389.95	1.68	49613.57	111.6	70 -	120		
115	In	2	5653639.50	0.97	5051085.50	111.9	70 -	120		
209	Bi	2	4304983.00	1.52	4047822.50	106.4	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\094_CCB.D\094_CCB.D#

Date Acquired:	Jun 2 2014 08:20 pm	Sample Name:	**CCB4-140602**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	31.780	ppb	0.27	2.00	2.00	Failsoil
9	Be	2	45	-0.011	ppb	12.50	0.10	0.30	
11	B	2	45	-2.210	ppb	2.34	10.00	10.00	
23	Na	1	45	-62.670	ppb	1.06	50.00	#####	
24	Mg	1	45	-0.090	ppb	13.48	50.00	#####	
27	Al	1	45	1.540	ppb	10.53	50.00	10.00	
39	K	1	45	-20.240	ppb	6.26	50.00	#####	
44	Ca	2	45	-4.759	ppb	8.76	50.00	#####	
47	Ti	1	45	0.039	ppb	86.60	4.00	3.00	
51	V	1	45	0.036	ppb	20.98	4.00	3.00	
52	Cr	1	45	-0.081	ppb	26.82	2.00	2.00	
55	Mn	1	45	-0.032	ppb	24.12	2.00	3.00	
56	Fe	1	72	0.867	ppb	3.17	50.00	50.00	
59	Co	1	72	0.004	ppb	4.03	2.00	3.00	
60	Ni	1	72	0.009	ppb	6.90	2.00	3.00	
63	Cu	1	72	-0.180	ppb	2.91	2.00	2.00	
66	Zn	1	72	-0.077	ppb	24.75	4.00	2.00	
75	As	1	72	-0.026	ppb	28.26	2.00	2.00	
78	Se	1	72	0.084	ppb	31.11	0.60	2.00	
88	Sr	2	115	0.018	ppb	18.33	4.00	3.00	
95	Mo	2	115	0.059	ppb	24.83	2.00	2.00	
107	Ag	2	115	0.008	ppb	19.88	0.40	1.00	
111	Cd	2	115	0.021	ppb	45.89	0.40	0.30	
118	Sn	2	115	-0.062	ppb	22.38	4.00	3.00	
121	Sb	2	115	0.055	ppb	17.27	2.00	0.80	
137	Ba	2	115	0.007	ppb	27.70	2.00	3.00	
205	Tl	2	209	0.033	ppb	2.69	2.00	0.50	
208	Pb	2	209	0.005	ppb	17.01	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3577688.30	1.06	2907103.80	123.1	70 - 120	ISFail
45	Sc	1	78884.02	0.49	70367.78	112.1	70 - 120	
45	Sc	2	4950614.00	1.35	4292461.50	115.3	70 - 120	
72	Ge	1	55005.54	0.80	49613.57	110.9	70 - 120	
115	In	2	5465227.00	1.69	5051085.50	108.2	70 - 120	
209	Bi	2	4224415.00	0.95	4047822.50	104.4	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\095__PB.D\095__PB.D#

Date Acquired:	Jun 2 2014 08:26 pm	Sample Name:	**MB-63877**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLK6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.	RSD(%)	MDL	RL	Flag
7	Li	2	45	5.577 ppb	0.19	2.0	5.00	Fail
9	Be	2	45	-0.015 ppb	31.22	0.3	0.80	
11	B	2	45	-1.679 ppb	5.92	10.0	30.00	
23	Na	1	45	-50.230 ppb	3.79	100.0	#####	
24	Mg	1	45	2.824 ppb	13.95	100.0	#####	
27	Al	1	45	3.399 ppb	8.57	10.0	30.00	
39	K	1	45	-12.680 ppb	4.16	100.0	#####	
44	Ca	2	45	9.486 ppb	1.83	100.0	#####	
47	Ti	1	45	0.129 ppb	114.58	3.0	10.00	
51	V	1	45	0.045 ppb	19.09	3.0	10.00	
52	Cr	1	45	-0.024 ppb	20.74	2.0	5.00	
55	Mn	1	45	0.084 ppb	35.33	3.0	10.00	
56	Fe	1	72	1.932 ppb	6.21	50.0	#####	
59	Co	1	72	-0.003 ppb	24.02	3.0	10.00	
60	Ni	1	72	0.034 ppb	5.71	3.0	10.00	
63	Cu	1	72	-0.125 ppb	4.18	2.0	10.00	
66	Zn	1	72	0.653 ppb	21.18	2.0	5.00	
75	As	1	72	-0.041 ppb	12.08	2.0	5.00	
78	Se	1	72	0.064 ppb	26.46	2.0	5.00	
88	Sr	2	115	0.361 ppb	2.14	3.0	10.00	
95	Mo	2	115	0.080 ppb	11.47	2.0	5.00	
107	Ag	2	115	0.005 ppb	9.96	1.0	2.00	
111	Cd	2	115	0.029 ppb	38.70	0.3	1.00	
118	Sn	2	115	-0.051 ppb	9.87	3.0	10.00	
121	Sb	2	115	0.076 ppb	12.78	0.8	2.50	
137	Ba	2	115	0.037 ppb	8.33	3.0	10.00	
205	Tl	2	209	0.029 ppb	5.34	0.5	1.50	
208	Pb	2	209	0.029 ppb	17.31	0.3	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3501229.00	1.07	2907103.80	120.4	70 - 120	ISFail
45	Sc	1	79776.57	2.11	70367.78	113.4	70 - 120	
45	Sc	2	5088221.50	0.79	4292461.50	118.5	70 - 120	
72	Ge	1	55417.40	1.10	49613.57	111.7	70 - 120	
115	In	2	5637272.00	1.13	5051085.50	111.6	70 - 120	
209	Bi	2	4306665.50	1.24	4047822.50	106.4	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\096__PB.D\096__PB.D#

Date Acquired:	Jun 2 2014 08:32 pm	Sample Name:	MB-63783 TCLP
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKTCLP_MET
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.	RSD(%)	MDL	RL	Flag
7	Li	2	45	-2.754 ppb	0.68	2.0	5.00	
9	Be	2	45	-0.005 ppb	18.18	0.3	0.80	
11	B	2	45	4.168 ppb	2.06	10.0	30.00	
23	Na	1	45	160700.000 ppb	1.85	100.0	#####	Fail
24	Mg	1	45	5.882 ppb	11.56	100.0	#####	
27	Al	1	45	8.293 ppb	10.32	10.0	30.00	
39	K	1	45	-3.516 ppb	2.88	100.0	#####	
44	Ca	2	45	19.310 ppb	2.16	100.0	#####	
47	Ti	1	45	0.125 ppb	114.58	3.0	10.00	
51	V	1	45	0.071 ppb	20.71	3.0	10.00	
52	Cr	1	45	5.514 ppb	1.92	2.0	5.00	Fail
55	Mn	1	45	1.754 ppb	6.46	3.0	10.00	
56	Fe	1	72	30.540 ppb	2.97	50.0	#####	
59	Co	1	72	0.055 ppb	14.55	3.0	10.00	
60	Ni	1	72	3.368 ppb	1.81	3.0	10.00	J
63	Cu	1	72	0.199 ppb	6.75	2.0	10.00	
66	Zn	1	72	1.288 ppb	6.69	2.0	5.00	
75	As	1	72	-0.023 ppb	12.33	2.0	5.00	
78	Se	1	72	0.163 ppb	8.33	2.0	5.00	
88	Sr	2	115	0.084 ppb	5.58	3.0	10.00	
95	Mo	2	115	0.175 ppb	3.72	2.0	5.00	
107	Ag	2	115	0.021 ppb	14.06	1.0	2.00	
111	Cd	2	115	0.009 ppb	111.25	0.3	1.00	
118	Sn	2	115	0.220 ppb	8.40	3.0	10.00	
121	Sb	2	115	0.083 ppb	15.16	0.8	2.50	
137	Ba	2	115	0.275 ppb	4.80	3.0	10.00	
205	Tl	2	209	0.032 ppb	13.17	0.5	1.50	
208	Pb	2	209	0.049 ppb	8.17	0.3	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3431226.50	1.06	2907103.80	118.0	70 - 120	
45	Sc	1	80840.62	1.27	70367.78	114.9	70 - 120	
45	Sc	2	5051893.00	0.19	4292461.50	117.7	70 - 120	
72	Ge	1	54761.64	0.63	49613.57	110.4	70 - 120	
115	In	2	5386338.50	0.45	5051085.50	106.6	70 - 120	
209	Bi	2	4013622.80	0.83	4047822.50	99.2	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\097_LCS.D\097_LCS.D#

Date Acquired:	Jun 2 2014 08:38 pm	Sample Name:	**LCS-63877**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	3005.00	ppb	1.95	200.00	80 -	120	1502.5	Fail
9	Be	2	45	209.90	ppb	0.97	200.00	80 -	120	105.0	
11	B	2	45	235.40	ppb	0.50	200.00	80 -	120	117.7	
23	Na	1	45	4780.00	ppb	0.46	5000.00	80 -	120	95.6	
24	Mg	1	45	4672.00	ppb	0.57	5000.00	80 -	120	93.4	
27	Al	1	45	4948.00	ppb	1.08	5000.00	80 -	120	99.0	
39	K	1	45	5039.00	ppb	0.56	5000.00	80 -	120	100.8	
44	Ca	2	45	5019.00	ppb	0.25	5000.00	80 -	120	100.4	
47	Ti	1	45	205.30	ppb	5.34	200.00	80 -	120	102.7	
51	V	1	45	188.20	ppb	0.90	200.00	80 -	120	94.1	
52	Cr	1	45	186.60	ppb	0.70	200.00	80 -	120	93.3	
55	Mn	1	45	201.50	ppb	0.95	200.00	80 -	120	100.8	
56	Fe	1	72	5092.00	ppb	0.86	5000.00	80 -	120	101.8	
59	Co	1	72	191.90	ppb	0.23	200.00	80 -	120	96.0	
60	Ni	1	72	200.70	ppb	0.61	200.00	80 -	120	100.4	
63	Cu	1	72	191.00	ppb	0.39	200.00	80 -	120	95.5	
66	Zn	1	72	194.20	ppb	0.56	200.00	80 -	120	97.1	
75	As	1	72	191.70	ppb	0.86	200.00	80 -	120	95.9	
78	Se	1	72	215.60	ppb	2.09	200.00	80 -	120	107.8	
88	Sr	2	115	222.80	ppb	0.83	200.00	80 -	120	111.4	
95	Mo	2	115	201.10	ppb	0.79	200.00	80 -	120	100.6	
107	Ag	2	115	195.30	ppb	0.88	200.00	80 -	120	97.7	
111	Cd	2	115	192.10	ppb	0.98	200.00	80 -	120	96.1	
118	Sn	2	115	202.80	ppb	0.65	200.00	80 -	120	101.4	
121	Sb	2	115	180.60	ppb	0.90	200.00	80 -	120	90.3	
137	Ba	2	115	187.60	ppb	0.83	200.00	80 -	120	93.8	
205	Tl	2	209	200.60	ppb	2.98	200.00	80 -	120	100.3	
208	Pb	2	209	196.00	ppb	0.59	200.00	80 -	120	98.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	3537306.50	0.95	2907103.80	121.7	70 -	120	ISFail
45	Sc	1	81098.92	0.90	70367.78	115.3	70 -	120	
45	Sc	2	4990091.50	0.89	4292461.50	116.3	70 -	120	
72	Ge	1	55432.17	0.63	49613.57	111.7	70 -	120	
115	In	2	5491679.00	0.42	5051085.50	108.7	70 -	120	
209	Bi	2	4215921.00	1.18	4047822.50	104.2	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\098_LCS.D\098_LCS.D#

Date Acquired:	Jun 2 2014 08:44 pm	Sample Name:	LCSD-63877
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSD6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	2959.00	ppb	0.19	200.00	80 -	120	1479.5	Fail
9	Be	2	45	206.80	ppb	0.26	200.00	80 -	120	103.4	
11	B	2	45	230.60	ppb	0.69	200.00	80 -	120	115.3	
23	Na	1	45	4816.00	ppb	0.88	5000.00	80 -	120	96.3	
24	Mg	1	45	4787.00	ppb	1.43	5000.00	80 -	120	95.7	
27	Al	1	45	5073.00	ppb	2.37	5000.00	80 -	120	101.5	
39	K	1	45	5135.00	ppb	0.13	5000.00	80 -	120	102.7	
44	Ca	2	45	4963.00	ppb	0.50	5000.00	80 -	120	99.3	
47	Ti	1	45	217.10	ppb	4.16	200.00	80 -	120	108.6	
51	V	1	45	193.80	ppb	1.58	200.00	80 -	120	96.9	
52	Cr	1	45	191.30	ppb	2.04	200.00	80 -	120	95.7	
55	Mn	1	45	204.20	ppb	0.89	200.00	80 -	120	102.1	
56	Fe	1	72	5203.00	ppb	1.77	5000.00	80 -	120	104.1	
59	Co	1	72	195.50	ppb	1.38	200.00	80 -	120	97.8	
60	Ni	1	72	203.70	ppb	1.24	200.00	80 -	120	101.9	
63	Cu	1	72	196.10	ppb	1.46	200.00	80 -	120	98.1	
66	Zn	1	72	198.60	ppb	1.05	200.00	80 -	120	99.3	
75	As	1	72	195.30	ppb	1.29	200.00	80 -	120	97.7	
78	Se	1	72	220.30	ppb	1.06	200.00	80 -	120	110.2	
88	Sr	2	115	220.40	ppb	0.82	200.00	80 -	120	110.2	
95	Mo	2	115	200.70	ppb	0.91	200.00	80 -	120	100.4	
107	Ag	2	115	195.20	ppb	0.68	200.00	80 -	120	97.6	
111	Cd	2	115	190.50	ppb	1.47	200.00	80 -	120	95.3	
118	Sn	2	115	201.70	ppb	1.49	200.00	80 -	120	100.9	
121	Sb	2	115	181.60	ppb	0.42	200.00	80 -	120	90.8	
137	Ba	2	115	186.00	ppb	0.41	200.00	80 -	120	93.0	
205	Tl	2	209	198.30	ppb	2.93	200.00	80 -	120	99.2	
208	Pb	2	209	193.00	ppb	1.21	200.00	80 -	120	96.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	3513293.30	1.10	2907103.80	120.9	70 -	120	ISFail
45	Sc	1	78978.22	0.98	70367.78	112.2	70 -	120	
45	Sc	2	5030671.50	0.91	4292461.50	117.2	70 -	120	
72	Ge	1	54327.40	0.66	49613.57	109.5	70 -	120	
115	In	2	5468447.00	0.90	5051085.50	108.3	70 -	120	
209	Bi	2	4165296.30	1.36	4047822.50	102.9	70 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\100AREF.D\100AREF.D#

Date Acquired:	Jun 2 2014 08:56 pm	Sample Name:	**1405261-24A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	183.100	ppb	#REF!	0.45	2000.00	>RL
9	Be	2	45	0.044	ppb	#REF!	47.74	2000.00	ND
11	B	2	45	607.000	ppb	#REF!	0.45	2000.00	>RL
23	Na	1	45	20830.000	ppb	#REF!	1.45	25000.00	>RL
24	Mg	1	45	8831.000	ppb	#REF!	2.79	25000.00	>RL
27	Al	1	45	17.020	ppb	#REF!	13.25	10000.00	ND
39	K	1	45	14070.000	ppb	#REF!	0.89	25000.00	>RL
44	Ca	2	45	167700.000	ppb	#REF!	0.95	25000.00	OUTCAL
47	Ti	1	45	0.282	ppb	#REF!	49.50	2000.00	ND
51	V	1	45	13.820	ppb	#REF!	1.62	2000.00	>RL
52	Cr	1	45	0.149	ppb	#REF!	12.12	2000.00	ND
55	Mn	1	45	1.577	ppb	#REF!	3.66	2000.00	ND
56	Fe	1	72	33.330	ppb	#REF!	1.95	10000.00	ND
59	Co	1	72	0.107	ppb	#REF!	10.02	2000.00	ND
60	Ni	1	72	0.413	ppb	#REF!	10.26	2000.00	ND
63	Cu	1	72	0.010	ppb	#REF!	6.13	2000.00	ND
66	Zn	1	72	22.260	ppb	#REF!	2.16	2000.00	>RL
75	As	1	72	95.090	ppb	#REF!	2.43	2000.00	>RL
78	Se	1	72	16.120	ppb	#REF!	0.73	2000.00	>RL
88	Sr	2	115	479.500	ppb	#REF!	0.53	2000.00	>RL
95	Mo	2	115	22.830	ppb	#REF!	1.24	2000.00	>RL
107	Ag	2	115	0.060	ppb	#REF!	52.66	500.00	ND
111	Cd	2	115	0.104	ppb	#REF!	7.18	2000.00	ND
118	Sn	2	115	0.122	ppb	#REF!	13.61	2000.00	ND
121	Sb	2	115	236.700	ppb	#REF!	1.46	500.00	>RL
137	Ba	2	115	68.910	ppb	#REF!	1.51	2000.00	>RL
205	Tl	2	209	0.242	ppb	#REF!	21.41	2000.00	ND
208	Pb	2	209	0.115	ppb	#REF!	21.70	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3160274.80	1.34	2907103.80	108.7	70 - 120	
45	Sc	1	76191.85	2.44	70367.78	108.3	70 - 120	
45	Sc	2	4691796.00	0.79	4292461.50	109.3	70 - 120	
72	Ge	1	53160.40	1.29	49613.57	107.1	70 - 120	
115	In	2	5155951.00	1.10	5051085.50	102.1	70 - 120	
209	Bi	2	3852124.00	1.33	4047822.50	95.2	70 - 120	

DT QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\101DT1.D\101DT1.D#

Date Acquired:	Jun 2 2014 09:02 pm	Sample Name:	**1405261-24A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD 6020A_W
Operator:	SW	Bench Diln:	5.00
Last Cal. Update:	Jun 02 2014 12:47 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	63.50	ppb	0.96	#########	90 -	110	0.0	
9	Be	2	45	0.02	ppb	16.47	0.04	90 -	110	228.2	
11	B	2	45	129.10	ppb	0.40	607.00	90 -	110	106.3	GOOD
23	Na	1	45	3974.00	ppb	0.55	20830.00	90 -	110	95.4	GOOD
24	Mg	1	45	1769.00	ppb	3.60	8831.00	90 -	110	100.2	GOOD
27	Al	1	45	5.63	ppb	15.75	17.02	90 -	110	165.3	
39	K	1	45	2732.00	ppb	1.25	14070.00	90 -	110	97.1	GOOD
44	Ca	2	45	33230.00	ppb	0.31	167700.00	90 -	110	99.1	GOOD
47	Ti	1	45	-0.05	ppb	0.00	0.28	90 -	110	-93.8	
51	V	1	45	2.78	ppb	6.01	13.82	90 -	110	100.5	GOOD
52	Cr	1	45	-0.04	ppb	10.22	0.15	90 -	110	-118.8	
55	Mn	1	45	0.33	ppb	8.44	1.58	90 -	110	103.0	GOOD
56	Fe	1	72	7.27	ppb	2.70	33.33	90 -	110	109.0	GOOD
59	Co	1	72	0.03	ppb	31.52	0.11	90 -	110	137.9	
60	Ni	1	72	0.08	ppb	18.03	0.41	90 -	110	100.2	GOOD
63	Cu	1	72	-0.06	ppb	4.72	0.01	90 -	110	######	
66	Zn	1	72	4.67	ppb	1.47	22.26	90 -	110	104.8	GOOD
75	As	1	72	18.61	ppb	2.29	95.09	90 -	110	97.9	GOOD
78	Se	1	72	3.04	ppb	28.09	16.12	90 -	110	94.2	GOOD
88	Sr	2	115	90.74	ppb	1.06	479.50	90 -	110	94.6	GOOD
95	Mo	2	115	4.48	ppb	1.02	22.83	90 -	110	98.1	GOOD
107	Ag	2	115	0.03	ppb	4.55	0.06	90 -	110	282.8	
111	Cd	2	115	0.05	ppb	18.94	0.10	90 -	110	238.8	
118	Sn	2	115	0.01	ppb	15.89	0.12	90 -	110	35.6	
121	Sb	2	115	45.74	ppb	1.51	236.70	90 -	110	96.6	GOOD
137	Ba	2	115	13.29	ppb	0.69	68.91	90 -	110	96.4	GOOD
205	Tl	2	209	0.10	ppb	5.19	0.24	90 -	110	198.7	
208	Pb	2	209	0.05	ppb	9.07	0.11	90 -	110	204.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3436160.00	0.99	2907103.80	118.2	70 -		120	
45	Sc	1	75889.27	1.27	70367.78	107.8	70 -		120	
45	Sc	2	4803440.50	0.52	4292461.50	111.9	70 -		120	
72	Ge	1	52985.87	1.32	49613.57	106.8	70 -		120	
115	In	2	5287337.50	1.31	5051085.50	104.7	70 -		120	
209	Bi	2	4009307.50	1.86	4047822.50	99.0	70 -		120	

PDS QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\111_PDS.D\111_PDS.D#

Date Acquired:	Jun 2 2014 10:03 pm	Sample Name:	**1405261-24A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	204.00	ppb	1.71	#########	200	75-125	######	Fail
9	Be	2	45	220.90	ppb	1.25	0.04	200	75-125	110.4	
11	B	2	45	773.90	ppb	1.99	607.00	200	75-125	83.5	
23	Na	1	45	25000.00	ppb	0.56	20830.00	5000	75-125	83.4	
24	Mg	1	45	13650.00	ppb	0.62	8831.00	5000	75-125	96.4	
27	Al	1	45	5121.00	ppb	1.97	17.02	5000	75-125	102.1	
39	K	1	45	19210.00	ppb	0.35	14070.00	5000	75-125	102.8	
44	Ca	2	45	162500.00	ppb	1.95	167700.00	5000	75-125	-104.0	Fail
47	Ti	1	45	216.10	ppb	3.02	0.28	200	75-125	107.9	
51	V	1	45	220.90	ppb	1.31	13.82	200	75-125	103.5	
52	Cr	1	45	203.20	ppb	0.77	0.15	200	75-125	101.5	
55	Mn	1	45	211.30	ppb	1.33	1.58	200	75-125	104.9	
56	Fe	1	72	4901.00	ppb	1.54	33.33	5000	75-125	97.4	
59	Co	1	72	197.80	ppb	1.33	0.11	200	75-125	98.8	
60	Ni	1	72	202.30	ppb	1.01	0.41	200	75-125	100.9	
63	Cu	1	72	189.40	ppb	1.02	0.01	200	75-125	94.7	
66	Zn	1	72	216.60	ppb	1.73	22.26	200	75-125	97.2	
75	As	1	72	303.40	ppb	0.89	95.09	200	75-125	104.2	
78	Se	1	72	215.40	ppb	1.73	16.12	200	75-125	99.6	
88	Sr	2	115	676.10	ppb	1.60	479.50	200	75-125	98.3	
95	Mo	2	115	220.90	ppb	2.07	22.83	200	75-125	99.0	
107	Ag	2	115	186.70	ppb	2.18	0.06	200	75-125	93.3	
111	Cd	2	115	190.70	ppb	2.27	0.10	200	75-125	95.3	
118	Sn	2	115	210.40	ppb	1.93	0.12	200	75-125	105.1	
121	Sb	2	115	406.90	ppb	2.09	236.70	200	75-125	85.1	
137	Ba	2	115	266.40	ppb	2.49	68.91	200	75-125	98.7	
205	Tl	2	209	205.20	ppb	2.50	0.24	200	75-125	102.5	
208	Pb	2	209	202.50	ppb	2.31	0.11	200	75-125	101.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2933694.00	1.56	2907103.80	100.9	70 - 120	
45	Sc	1	65645.59	0.81	70367.78	93.3	70 - 120	
45	Sc	2	4061857.00	2.03	4292461.50	94.6	70 - 120	
72	Ge	1	46167.18	0.96	49613.57	93.1	70 - 120	
115	In	2	4221472.50	1.76	5051085.50	83.6	70 - 120	
209	Bi	2	3091372.50	1.58	4047822.50	76.4	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\112_MS.D\112_MS.D#

Date Acquired:	Jun 2 2014 10:09 pm	Sample Name:	**1405261-24A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	3246.00	ppb	1.82	########	200	80-120	######	Fail
9	Be	2	45	213.80	ppb	1.29	0.04	200	80-120	106.9	
11	B	2	45	820.20	ppb	1.83	607.00	200	80-120	106.6	
23	Na	1	45	25000.00	ppb	0.77	20830.00	5000	80-120	83.4	
24	Mg	1	45	13340.00	ppb	1.76	8831.00	5000	80-120	90.2	
27	Al	1	45	5209.00	ppb	2.62	17.02	5000	80-120	103.8	
39	K	1	45	18960.00	ppb	0.88	14070.00	5000	80-120	97.8	
44	Ca	2	45	167200.00	ppb	0.78	########	5000	80-120	-10.0	Fail
47	Ti	1	45	217.50	ppb	3.11	0.28	200	80-120	108.6	
51	V	1	45	217.00	ppb	2.05	13.82	200	80-120	101.6	
52	Cr	1	45	195.00	ppb	2.08	0.15	200	80-120	97.4	
55	Mn	1	45	207.80	ppb	1.79	1.58	200	80-120	103.1	
56	Fe	1	72	5137.00	ppb	1.72	33.33	5000	80-120	102.1	
59	Co	1	72	190.40	ppb	1.72	0.11	200	80-120	95.1	
60	Ni	1	72	196.40	ppb	2.58	0.41	200	80-120	98.0	
63	Cu	1	72	185.50	ppb	1.51	0.01	200	80-120	92.7	
66	Zn	1	72	207.30	ppb	2.18	22.26	200	80-120	92.5	
75	As	1	72	298.50	ppb	1.68	95.09	200	80-120	101.7	
78	Se	1	72	217.90	ppb	2.23	16.12	200	80-120	100.9	
88	Sr	2	115	688.60	ppb	0.93	479.50	200	80-120	104.6	
95	Mo	2	115	236.40	ppb	1.21	22.83	200	80-120	106.8	
107	Ag	2	115	192.30	ppb	1.58	0.06	200	80-120	96.1	
111	Cd	2	115	188.80	ppb	1.84	0.10	200	80-120	94.3	
118	Sn	2	115	211.70	ppb	2.04	0.12	200	80-120	105.8	
121	Sb	2	115	435.90	ppb	1.93	236.70	200	80-120	99.6	
137	Ba	2	115	265.00	ppb	1.97	68.91	200	80-120	98.0	
205	Tl	2	209	202.70	ppb	2.10	0.24	200	80-120	101.2	
208	Pb	2	209	197.30	ppb	1.75	0.11	200	80-120	98.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2919822.00	1.91	2907103.80	100.4	70 - 120	
45	Sc	1	62566.15	0.18	70367.78	88.9	70 - 120	
45	Sc	2	4119171.80	1.27	4292461.50	96.0	70 - 120	
72	Ge	1	44339.61	0.12	49613.57	89.4	70 - 120	
115	In	2	4265820.50	1.68	5051085.50	84.5	70 - 120	
209	Bi	2	3128239.80	1.71	4047822.50	77.3	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\113_MS.D\113_MS.D#

Date Acquired:	Jun 2 2014 10:15 pm	Sample Name:	**1405261-24A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	3174.00	ppb	0.85	########	200	80-120	######	Fail
9	Be	2	45	217.10	ppb	1.43	0.04	200	80-120	108.5	
11	B	2	45	831.20	ppb	2.40	607.00	200	80-120	112.1	
23	Na	1	45	25450.00	ppb	1.98	20830.00	5000	80-120	92.4	
24	Mg	1	45	13570.00	ppb	2.82	8831.00	5000	80-120	94.8	
27	Al	1	45	5251.00	ppb	3.13	17.02	5000	80-120	104.7	
39	K	1	45	19450.00	ppb	2.27	14070.00	5000	80-120	107.6	
44	Ca	2	45	172400.00	ppb	1.68	########	5000	80-120	94.0	
47	Ti	1	45	231.50	ppb	4.83	0.28	200	80-120	115.6	
51	V	1	45	222.30	ppb	2.83	13.82	200	80-120	104.2	
52	Cr	1	45	199.90	ppb	3.50	0.15	200	80-120	99.9	
55	Mn	1	45	212.10	ppb	2.83	1.58	200	80-120	105.3	
56	Fe	1	72	5266.00	ppb	3.39	33.33	5000	80-120	104.7	
59	Co	1	72	193.30	ppb	2.59	0.11	200	80-120	96.6	
60	Ni	1	72	199.50	ppb	2.61	0.41	200	80-120	99.5	
63	Cu	1	72	188.60	ppb	2.75	0.01	200	80-120	94.3	
66	Zn	1	72	213.00	ppb	2.59	22.26	200	80-120	95.4	
75	As	1	72	311.50	ppb	2.59	95.09	200	80-120	108.2	
78	Se	1	72	223.70	ppb	3.24	16.12	200	80-120	103.8	
88	Sr	2	115	706.60	ppb	1.21	479.50	200	80-120	113.6	
95	Mo	2	115	242.70	ppb	2.04	22.83	200	80-120	109.9	
107	Ag	2	115	196.50	ppb	2.17	0.06	200	80-120	98.2	
111	Cd	2	115	192.70	ppb	2.04	0.10	200	80-120	96.3	
118	Sn	2	115	215.80	ppb	1.93	0.12	200	80-120	107.8	
121	Sb	2	115	451.10	ppb	2.19	236.70	200	80-120	107.2	
137	Ba	2	115	272.10	ppb	1.41	68.91	200	80-120	101.6	
205	Tl	2	209	207.00	ppb	2.68	0.24	200	80-120	103.4	
208	Pb	2	209	202.00	ppb	2.33	0.11	200	80-120	100.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2876937.80	0.87	2907103.80	99.0	70 - 120	
45	Sc	1	67936.90	1.58	70367.78	96.5	70 - 120	
45	Sc	2	4248161.00	1.20	4292461.50	99.0	70 - 120	
72	Ge	1	48250.42	1.09	49613.57	97.3	70 - 120	
115	In	2	4411762.00	1.78	5051085.50	87.3	70 - 120	
209	Bi	2	3174740.80	1.93	4047822.50	78.4	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\114CCV1.D\114CCV1.D#

Date Acquired:	Jun 2 2014 10:21 pm	Sample Name:	**CCV5-140602**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	3187.00	ppb	0.62	200.00	90 -	110	1593.5	Fail
9	Be	2	45	225.10	ppb	0.70	200.00	90 -	110	112.6	Fail
11	B	2	45	238.80	ppb	0.83	200.00	90 -	110	119.4	Fail
23	Na	1	45	4755.00	ppb	1.49	5000.00	90 -	110	95.1	
24	Mg	1	45	4808.00	ppb	2.40	5000.00	90 -	110	96.2	
27	Al	1	45	5280.00	ppb	3.10	5000.00	90 -	110	105.6	
39	K	1	45	5322.00	ppb	1.46	5000.00	90 -	110	106.4	
44	Ca	2	45	5148.00	ppb	0.82	5000.00	90 -	110	103.0	
47	Ti	1	45	227.30	ppb	1.75	200.00	90 -	110	113.7	Fail
51	V	1	45	205.80	ppb	2.45	200.00	90 -	110	102.9	
52	Cr	1	45	200.00	ppb	3.17	200.00	90 -	110	100.0	
55	Mn	1	45	211.40	ppb	3.04	200.00	90 -	110	105.7	
56	Fe	1	72	5216.00	ppb	3.05	5000.00	90 -	110	104.3	
59	Co	1	72	197.90	ppb	2.48	200.00	90 -	110	99.0	
60	Ni	1	72	206.10	ppb	2.14	200.00	90 -	110	103.1	
63	Cu	1	72	198.60	ppb	1.95	200.00	90 -	110	99.3	
66	Zn	1	72	203.00	ppb	3.12	200.00	90 -	110	101.5	
75	As	1	72	209.70	ppb	2.22	200.00	90 -	110	104.9	
78	Se	1	72	210.20	ppb	1.52	200.00	90 -	110	105.1	
88	Sr	2	115	231.60	ppb	0.70	200.00	90 -	110	115.8	Fail
95	Mo	2	115	212.60	ppb	0.90	200.00	90 -	110	106.3	
107	Ag	2	115	197.30	ppb	0.64	200.00	90 -	110	98.7	
111	Cd	2	115	193.60	ppb	0.41	200.00	90 -	110	96.8	
118	Sn	2	115	209.10	ppb	0.85	200.00	90 -	110	104.6	
121	Sb	2	115	195.30	ppb	0.26	200.00	90 -	110	97.7	
137	Ba	2	115	197.30	ppb	1.07	200.00	90 -	110	98.7	
205	Tl	2	209	201.10	ppb	1.16	200.00	90 -	110	100.6	
208	Pb	2	209	197.90	ppb	0.56	200.00	90 -	110	99.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3033473.50	0.93	2907103.80	104.3	70 -	120		
45	Sc	1	65616.38	1.79	70367.78	93.2	70 -	120		
45	Sc	2	4145013.80	0.72	4292461.50	96.6	70 -	120		
72	Ge	1	46272.27	1.01	49613.57	93.3	70 -	120		
115	In	2	4355131.00	0.66	5051085.50	86.2	70 -	120		
209	Bi	2	3237908.50	0.37	4047822.50	80.0	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\120LCVL.D\120LCVL.D#

Date Acquired:	Jun 2 2014 10:57 pm	Sample Name:	**LCVL5-140602**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	75.67	ppb	0.64	5.00	70 -	130	1513.4	Fail
9	Be	2	45	1.08	ppb	8.85	1.00	70 -	130	108.3	
11	B	2	45	23.04	ppb	1.91	20.00	70 -	130	115.2	
23	Na	1	45	49.69	ppb	2.31	100.00	70 -	130	49.7	Fail
24	Mg	1	45	105.60	ppb	0.79	100.00	70 -	130	105.6	
27	Al	1	45	100.20	ppb	3.92	100.00	70 -	130	100.2	
39	K	1	45	103.90	ppb	0.83	100.00	70 -	130	103.9	
44	Ca	2	45	112.80	ppb	1.47	100.00	70 -	130	112.8	
47	Ti	1	45	6.87	ppb	7.92	5.00	70 -	130	137.5	Fail
51	V	1	45	1.05	ppb	4.13	1.00	70 -	130	104.5	
52	Cr	1	45	4.77	ppb	4.51	5.00	70 -	130	95.4	
55	Mn	1	45	4.93	ppb	2.36	5.00	70 -	130	98.6	
56	Fe	1	72	93.12	ppb	2.71	100.00	70 -	130	93.1	
59	Co	1	72	4.78	ppb	4.26	5.00	70 -	130	95.6	
60	Ni	1	72	4.99	ppb	1.27	5.00	70 -	130	99.9	
63	Cu	1	72	4.55	ppb	2.82	5.00	70 -	130	91.0	
66	Zn	1	72	4.52	ppb	13.02	5.00	70 -	130	90.5	
75	As	1	72	4.84	ppb	2.07	5.00	70 -	130	96.8	
78	Se	1	72	4.74	ppb	8.86	5.00	70 -	130	94.8	
88	Sr	2	115	5.10	ppb	2.11	5.00	70 -	130	102.0	
95	Mo	2	115	4.70	ppb	2.44	5.00	70 -	130	94.0	
107	Ag	2	115	1.76	ppb	4.08	2.00	70 -	130	87.8	
111	Cd	2	115	0.99	ppb	3.89	1.00	70 -	130	99.2	
118	Sn	2	115	4.92	ppb	2.70	5.00	70 -	130	98.3	
121	Sb	2	115	1.91	ppb	3.23	2.00	70 -	130	95.5	
137	Ba	2	115	4.60	ppb	2.72	5.00	70 -	130	92.0	
205	Tl	2	209	1.08	ppb	0.80	1.00	70 -	130	107.5	
208	Pb	2	209	0.98	ppb	1.55	1.00	70 -	130	98.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3496627.50	0.71	2907103.80	120.3	70 -	120		ISFail
45	Sc	1	69510.62	1.67	70367.78	98.8	70 -	120		
45	Sc	2	4406017.50	0.95	4292461.50	102.6	70 -	120		
72	Ge	1	48826.50	1.13	49613.57	98.4	70 -	120		
115	In	2	4690080.00	1.03	5051085.50	92.9	70 -	120		
209	Bi	2	3530742.00	1.60	4047822.50	87.2	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14F02k01.B\122_CCB.D\122_CCB.D#

Date Acquired:	Jun 2 2014 11:09 pm	Sample Name:	**CCB5-140602**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Jun 02 2014 12:47 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	74.430	ppb	0.32	2.00	2.00	Failsoil
9	Be	2	45	0.002	ppb	12.39	0.10	0.30	
11	B	2	45	0.489	ppb	5.60	10.00	10.00	
23	Na	1	45	-55.630	ppb	5.20	50.00	#####	
24	Mg	1	45	0.098	ppb	20.41	50.00	#####	
27	Al	1	45	0.851	ppb	16.67	50.00	10.00	
39	K	1	45	-2.915	ppb	4.76	50.00	#####	
44	Ca	2	45	-1.121	ppb	1.98	50.00	#####	
47	Ti	1	45	-0.003	ppb	173.20	4.00	3.00	
51	V	1	45	0.051	ppb	16.22	4.00	3.00	
52	Cr	1	45	-0.060	ppb	14.32	2.00	2.00	
55	Mn	1	45	-0.007	ppb	15.80	2.00	3.00	
56	Fe	1	72	0.501	ppb	14.76	50.00	50.00	
59	Co	1	72	0.022	ppb	12.52	2.00	3.00	
60	Ni	1	72	0.013	ppb	33.94	2.00	3.00	
63	Cu	1	72	-0.209	ppb	6.90	2.00	2.00	
66	Zn	1	72	-0.152	ppb	26.23	4.00	2.00	
75	As	1	72	0.030	ppb	10.43	2.00	2.00	
78	Se	1	72	-0.021	ppb	43.84	0.60	2.00	
88	Sr	2	115	0.034	ppb	15.15	4.00	3.00	
95	Mo	2	115	0.123	ppb	4.67	2.00	2.00	
107	Ag	2	115	0.018	ppb	26.74	0.40	1.00	
111	Cd	2	115	0.021	ppb	88.44	0.40	0.30	
118	Sn	2	115	-0.040	ppb	27.61	4.00	3.00	
121	Sb	2	115	0.109	ppb	21.72	2.00	0.80	
137	Ba	2	115	0.006	ppb	10.19	2.00	3.00	
205	Tl	2	209	0.058	ppb	6.34	2.00	0.50	
208	Pb	2	209	0.010	ppb	7.25	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3486806.50	0.26	2907103.80	119.9	70 - 120	
45	Sc	1	71623.07	1.23	70367.78	101.8	70 - 120	
45	Sc	2	4383730.50	1.02	4292461.50	102.1	70 - 120	
72	Ge	1	49800.13	1.13	49613.57	100.4	70 - 120	
115	In	2	4641116.50	1.19	5051085.50	91.9	70 - 120	
209	Bi	2	3537150.00	1.15	4047822.50	87.4	70 - 120	

ICP-MS4
For

DHL Work Order
1405261

ICP-MS4_140529A
For

DHL Work Order
1405261

Lab Data Review Check List

EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS4_140529A SOP: Metals-ICP-MS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			X
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			
P/A Factor	Before ICAL	Increasing trend	X			X
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			X
ICSAB (N/A for Method 200.8)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLS and ICSA/ICSAB is N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%	X			
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%			X	X
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%		X		
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)	X			
Dilution Test (SD) - RPD	Every Batch	10		X		
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)		X		

Lab Data Review Check List

EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			X
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> 5% of highest standard	X			
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality			X	X
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

TECHNICAL DIRECTOR / QA MANAGER APPROVAL SIGNATURE AND DATE STAMP:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> MDL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag data / Case narrative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

See Notes in Run Log

Analyst: [signature] Date of Completion: 5/29/2014

Second-Level Review: [signature] Reviewer Date Stamp:

REVIEWED
By Evelyn Ferrero at 6:13:51 PM, 5/29/2014

DHL Analytical, Inc.

Run ID: ICP-MS4_140529A **Run No.:** 73425

Analytical Run Date: 5/29/2014 **InstrumentID:** ICP-MS4

Analyst: Sara Wieland

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TW	CAL	R73425	5/29/2014 9:46:00 AM		
Cal01	1	ICPMS_TW	CAL	R73425	5/29/2014 9:48:00 AM		
Cal02	1	ICPMS_TW	CAL	R73425	5/29/2014 9:50:00 AM		
Cal03	1	ICPMS_TW	CAL	R73425	5/29/2014 9:52:00 AM		
Cal04	1	ICPMS_TW	CAL	R73425	5/29/2014 9:54:00 AM		
Cal05	1	ICPMS_TW	CAL	R73425	5/29/2014 9:56:00 AM		
Cal06	1	ICPMS_TW	CAL	R73425	5/29/2014 9:58:00 AM		
Cal07	1	ICPMS_TW	CAL	R73425	5/29/2014 10:00:00 AM		
ICSA-140529	1	ICPMS_TW	ICSA	R73425	5/29/2014 10:06:00 AM		
ICSAB-140529	1	ICPMS_TW	ICSB	R73425	5/29/2014 10:07:00 AM		
ICV-140529	1	6020A_W	ICV	R73425	5/29/2014 10:13:00 AM		
LCVL-140529	1	6020A_W	LCVL	R73425	5/29/2014 10:17:00 AM		
ICB-140529	1	6020A_W	ICB	R73425	5/29/2014 10:21:00 AM		
MB-63805	5	6020A_S	MBLK	63805	5/29/2014 10:23:00 AM		
LCS-63805	5	6020A_S	LCS	63805	5/29/2014 10:25:00 AM		
LCSD-63805	5	6020A_S	LCSD	63805	5/29/2014 10:27:00 AM		
1405109-39A	5	6020A_S	SAMP	63805	5/29/2014 10:31:00 AM		
1405109-39A SD	25	6020A_S	SD	63805	5/29/2014 10:32:00 AM		R-flag Se; PDS passes, data accepted
1405109-40A	5	6020A_S	SAMP	63805	5/29/2014 10:34:00 AM		
1405109-41A	5	6020A_S	SAMP	63805	5/29/2014 10:36:00 AM		
1405109-42A	5	6020A_S	SAMP	63805	5/29/2014 10:38:00 AM		
1405109-43A	5	6020A_S	SAMP	63805	5/29/2014 10:40:00 AM		
1405109-44A	5	6020A_S	SAMP	63805	5/29/2014 10:42:00 AM		
1405109-45A	5	6020A_S	SAMP	63805	5/29/2014 10:44:00 AM		
1405109-46A	5	6020A_S	SAMP	63805	5/29/2014 10:46:00 AM		
1405109-47A	5	6020A_S	SAMP	63805	5/29/2014 10:48:00 AM		
1405109-39A PDS	5	6020A_S	PDS	63805	5/29/2014 10:52:00 AM		S-flag Ag; SD passes, data accepted. high
1405109-39A MS	5	6020A_S	MS	63805	5/29/2014 10:53:00 AM		S-flag Sb low
1405109-39A MSD	5	6020A_S	MSD	63805	5/29/2014 10:55:00 AM		S-flag Sb low
CCV1-140529	1	6020A_W	CCV	R73425	5/29/2014 11:05:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140401	ICPMS CCV 200/5000 PPB		06/30/2014
MET-H2CAL-1404	ICPMS High Cal2 2000ppb std 8		07/24/2014
MET-HCAL-14042	ICPMS High Cal 500ppb/10ppm s		07/24/2014
MET-ICV-140317	ICPMS ICV 100 ppb		06/15/2014
MET-IS-140416	INTERNAL STANDARD 1 PPM		07/15/2014
MET-L2CAL-14042	ICPMS Low Cal2 1/20ppb std 2		07/24/2014
MET-LCAL-140425	ICPMS Low Cal 10/200ppb std 3		07/24/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		07/24/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		07/24/2014
MET-MCAL-14042	ICPMS Mid Cal 250/5000ppb std		07/24/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140527-	250 PPM Naturals+Al+Fe PDS		08/25/2014
MET-PDS-140527-	10 PPM CUSTOM PDS SOLUTI		08/25/2014
MET-PDS-140527-	10 PPM Ag+Sb PDS		08/25/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		07/15/2014

Run ID: ICP-MS4_140529A **Run No.:** 73425

LCVL1-140529	1	6020A_W	LCVL	R73425	5/29/2014 11:09:00 AM		
CCB1-140529	1	6020A_W	CCB	R73425	5/29/2014 11:11:00 AM		
CCV3-140529	1	6020A_W	CCV	R73425	5/29/2014 11:59:00 AM		
LCVL3-140529	1	6020A_W	LCVL	R73425	5/29/2014 12:02:00 PM		
CCB3-140529	1	6020A_W	CCB	R73425	5/29/2014 12:04:00 PM		
MB-63830	1	6020A_W	MBLK	63830	5/29/2014 12:06:00 PM		
LCS-63830	1	6020A_W	LCS	63830	5/29/2014 12:08:00 PM		
LCSD-63830	1	6020A_W	LCSD	63830	5/29/2014 12:10:00 PM		
1405261-03A	1	6020A_W	SAMP	63830	5/29/2014 12:14:00 PM		
1405261-03A SD	5	6020A_W	SD	63830	5/29/2014 12:16:00 PM		
1405251-61A	1	6020A_W	SAMP	63830	5/29/2014 12:18:00 PM		
1405251-62A	1	6020A_W	SAMP	63830	5/29/2014 12:20:00 PM		
1405251-63A	1	6020A_W	SAMP	63830	5/29/2014 12:22:00 PM		
1405261-01A	1	6020A_W	SAMP	63830	5/29/2014 12:24:00 PM		
1405261-02A	1	6020A_W	SAMP	63830	5/29/2014 12:25:00 PM		
1405261-04A	1	6020A_W	SAMP	63830	5/29/2014 12:27:00 PM		
1405261-05A	1	6020A_W	SAMP	63830	5/29/2014 12:29:00 PM		
1405261-06A	1	6020A_W	SAMP	63830	5/29/2014 12:31:00 PM		
1405261-07A	1	6020A_W	SAMP	63830	5/29/2014 12:33:00 PM		
1405261-03A PDS	1	6020A_W	PDS	63830	5/29/2014 12:35:00 PM		
1405261-03A MS	1	6020A_W	MS	63830	5/29/2014 12:37:00 PM		
1405261-03A MSD	1	6020A_W	MSD	63830	5/29/2014 12:39:00 PM		
CCV4-140529	1	6020A_W	CCV	R73425	5/29/2014 12:40:00 PM		
LCVL4-140529	1	6020A_W	LCVL	R73425	5/29/2014 12:44:00 PM		
CCB4-140529	1	6020A_W	CCB	R73425	5/29/2014 12:46:00 PM		
1405261-08A	1	6020A_W	SAMP	63830	5/29/2014 12:48:00 PM		
1405261-09A	1	6020A_W	SAMP	63830	5/29/2014 12:50:00 PM		
1405261-10A	1	6020A_W	SAMP	63830	5/29/2014 12:52:00 PM		
1405261-11A	1	6020A_W	SAMP	63830	5/29/2014 12:54:00 PM		
1405261-12A	1	6020A_W	SAMP	63830	5/29/2014 12:56:00 PM		
1405261-13A	1	6020A_W	SAMP	63830	5/29/2014 12:58:00 PM		
1405261-14A	1	6020A_W	SAMP	63830	5/29/2014 1:00:00 PM		
1405261-15A	1	6020A_W	SAMP	63830	5/29/2014 1:01:00 PM		
1405261-16A	1	6020A_W	SAMP	63830	5/29/2014 1:03:00 PM		
CCV5-140529	1	6020A_W	CCV	R73425	5/29/2014 1:07:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140401	ICPMS CCV 200/5000 PPB		06/30/2014
MET-H2CAL-1404	ICPMS High Cal2 2000ppb std 8		07/24/2014
MET-HCAL-14042	ICPMS High Cal 500ppb/10ppm s		07/24/2014
MET-ICV-140317	ICPMS ICV 100 ppb		06/15/2014
MET-IS-140416	INTERNAL STANDARD 1 PPM		07/15/2014
MET-L2CAL-14042	ICPMS Low Cal2 1/20ppb std 2		07/24/2014
MET-LCAL-140425	ICPMS Low Cal 10/200ppb std 3		07/24/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		07/24/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		07/24/2014
MET-MCAL-14042	ICPMS Mid Cal 250/5000ppb std		07/24/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140527-	250 PPM Naturals+Al+Fe PDS		08/25/2014
MET-PDS-140527-	10 PPM CUSTOM PDS SOLUTI		08/25/2014
MET-PDS-140527-	10 PPM Ag+Sb PDS		08/25/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		07/15/2014

DHL Analytical, Inc.

Run ID: ICP-MS4_140529A **Run No.:** 73425

LCVL5-140529	1	6020A_W	LCVL	R73425	5/29/2014 1:11:00 PM		
CCB5-140529	1	6020A_W	CCB	R73425	5/29/2014 1:13:00 PM		
MB-63798	1	6020A_W	MBLK	63798	5/29/2014 1:15:00 PM		
LCS-63798	1	6020A_W	LCS	63798	5/29/2014 1:21:00 PM		
LCSD-63798	1	6020A_W	LCSD	63798	5/29/2014 1:23:00 PM		
1405265-04A	1	6020A_W	SAMP	63798	5/29/2014 1:26:00 PM		
1405265-04A SD	5	6020A_W	SD	63798	5/29/2014 1:28:00 PM		
1405265-01A	1	6020A_W	SAMP	63798	5/29/2014 1:30:00 PM		
1405265-02A	1	6020A_W	SAMP	63798	5/29/2014 1:32:00 PM		
1405265-03A	1	6020A_W	SAMP	63798	5/29/2014 1:34:00 PM		
1405265-04A PDS	1	6020A_W	PDS	63798	5/29/2014 1:46:00 PM		
1405265-04A MS	1	6020A_W	MS	63798	5/29/2014 1:47:00 PM		
1405265-04A MSD	1	6020A_W	MSD	63798	5/29/2014 1:49:00 PM		
CCV6-140529	1	6020A_W	CCV	R73425	5/29/2014 1:51:00 PM		
LCVL6-140529	1	6020A_W	LCVL	R73425	5/29/2014 1:55:00 PM		
CCB6-140529	1	6020A_W	CCB	R73425	5/29/2014 1:57:00 PM		
1405261-04A	10	6020A_W	SAMP	63830	5/29/2014 1:59:00 PM		
1405261-05A	10	6020A_W	SAMP	63830	5/29/2014 2:01:00 PM		
1405261-12A	10	6020A_W	SAMP	63830	5/29/2014 2:03:00 PM		
CCV7-140529	1	6020A_W	CCV	R73425	5/29/2014 2:05:00 PM		
LCVL7-140529	1	6020A_W	LCVL	R73425	5/29/2014 2:09:00 PM		
CCB7-140529	1	6020A_W	CCB	R73425	5/29/2014 2:11:00 PM		
MB-63851	1	6020A_W	MBLK	63851	5/29/2014 2:49:00 PM		
LCS-63851	1	6020A_W	LCS	63851	5/29/2014 2:51:00 PM		
LCSD-63851	1	6020A_W	LCSD	63851	5/29/2014 2:53:00 PM		
1405265-16A	1	6020A_W	SAMP	63851	5/29/2014 2:57:00 PM		
1405265-16A SD	5	6020A_W	SD	63851	5/29/2014 2:58:00 PM		
1405265-09A	1	6020A_W	SAMP	63851	5/29/2014 3:00:00 PM		
1405265-10A	1	6020A_W	SAMP	63851	5/29/2014 3:02:00 PM		
1405265-11A	1	6020A_W	SAMP	63851	5/29/2014 3:04:00 PM		
1405265-12A	1	6020A_W	SAMP	63851	5/29/2014 3:06:00 PM		
1405265-13A	1	6020A_W	SAMP	63851	5/29/2014 3:08:00 PM		
1405265-14A	1	6020A_W	SAMP	63851	5/29/2014 3:10:00 PM		
1405265-15A	1	6020A_W	SAMP	63851	5/29/2014 3:12:00 PM		
1405265-17A	1	6020A_W	SAMP	63851	5/29/2014 3:14:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140401	ICPMS CCV 200/5000 PPB		06/30/2014
MET-H2CAL-1404	ICPMS High Cal2 2000ppb std 8		07/24/2014
MET-HCAL-14042	ICPMS High Cal 500ppb/10ppm s		07/24/2014
MET-ICV-140317	ICPMS ICV 100 ppb		06/15/2014
MET-IS-140416	INTERNAL STANDARD 1 PPM		07/15/2014
MET-L2CAL-14042	ICPMS Low Cal2 1/20ppb std 2		07/24/2014
MET-LCAL-140425	ICPMS Low Cal 10/200ppb std 3		07/24/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		07/24/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		07/24/2014
MET-MCAL-14042	ICPMS Mid Cal 250/5000ppb std		07/24/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140527-	250 PPM Naturals+Al+Fe PDS		08/25/2014
MET-PDS-140527-	10 PPM CUSTOM PDS SOLUTI		08/25/2014
MET-PDS-140527-	10 PPM Ag+Sb PDS		08/25/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		07/15/2014

DHL Analytical, Inc.

Run ID: ICP-MS4_140529A **Run No.:** 73425

1405265-18A	1	6020A_W	SAMP	63851	5/29/2014 3:16:00 PM		
1405265-16A PDS	1	6020A_W	PDS	63851	5/29/2014 3:18:00 PM		
1405265-16A MS	1	6020A_W	MS	R73425	5/29/2014 3:19:00 PM		
1405265-16A MSD	1	6020A_W	MSD	R73425	5/29/2014 3:21:00 PM		
CCV8-140529	1	6020A_W	CCV	R73425	5/29/2014 3:23:00 PM		
LCVL8-140529	1	6020A_W	LCVL	R73425	5/29/2014 3:27:00 PM		
CCB8-140529	1	6020A_W	CCB	R73425	5/29/2014 3:29:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140401	ICPMS CCV 200/5000 PPB		06/30/2014
MET-H2CAL-1404	ICPMS High Cal2 2000ppb std 8		07/24/2014
MET-HCAL-14042	ICPMS High Cal 500ppb/10ppm s		07/24/2014
MET-ICV-140317	ICPMS ICV 100 ppb		06/15/2014
MET-IS-140416	INTERNAL STANDARD 1 PPM		07/15/2014
MET-L2CAL-14042	ICPMS Low Cal2 1/20ppb std 2		07/24/2014
MET-LCAL-140425	ICPMS Low Cal 10/200ppb std 3		07/24/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		07/24/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		07/24/2014
MET-MCAL-14042	ICPMS Mid Cal 250/5000ppb std		07/24/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140527-	250 PPM Naturals+Al+Fe PDS		08/25/2014
MET-PDS-140527-	10 PPM CUSTOM PDS SOLUTI		08/25/2014
MET-PDS-140527-	10 PPM Ag+Sb PDS		08/25/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		07/15/2014

DHL Analytical, Inc.

Run ID: ICP-MS4_140529A **Run No.:** 73425

Analytical Run Date: 5/29/2014 **InstrumentID:** ICP-MS4

Analyst: Sara Wieland

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TW	CAL	R73425	5/29/2014 9:46:00 AM		
Cal01	1	ICPMS_TW	CAL	R73425	5/29/2014 9:48:00 AM		
Cal02	1	ICPMS_TW	CAL	R73425	5/29/2014 9:50:00 AM		
Cal03	1	ICPMS_TW	CAL	R73425	5/29/2014 9:52:00 AM		
Cal04	1	ICPMS_TW	CAL	R73425	5/29/2014 9:54:00 AM		
Cal05	1	ICPMS_TW	CAL	R73425	5/29/2014 9:56:00 AM		
Cal06	1	ICPMS_TW	CAL	R73425	5/29/2014 9:58:00 AM		
Cal07	1	ICPMS_TW	CAL	R73425	5/29/2014 10:00:00 AM		
ICSA-140529	1	ICPMS_TW	ICSA	R73425	5/29/2014 10:06:00 AM		
ICSAB-140529	1	ICPMS_TW	ICSB	R73425	5/29/2014 10:07:00 AM		
ICV-140529	1	6020A_W	ICV	R73425	5/29/2014 10:13:00 AM		
LCVL-140529	1	6020A_W	LCVL	R73425	5/29/2014 10:17:00 AM		
ICB-140529	1	6020A_W	ICB	R73425	5/29/2014 10:21:00 AM		
MB-63805	5	6020A_S	MBLK	63805	5/29/2014 10:23:00 AM		
LCS-63805	5	6020A_S	LCS	63805	5/29/2014 10:25:00 AM		
LCSD-63805	5	6020A_S	LCSD	63805	5/29/2014 10:27:00 AM		
1405109-39A	5	6020A_S	SAMP	63805	5/29/2014 10:31:00 AM		
1405109-39A SD	25	6020A_S	SD	63805	5/29/2014 10:32:00 AM		R-flag Se; PDS passes, data accepted
1405109-40A	5	6020A_S	SAMP	63805	5/29/2014 10:34:00 AM		
1405109-41A	5	6020A_S	SAMP	63805	5/29/2014 10:36:00 AM		
1405109-42A	5	6020A_S	SAMP	63805	5/29/2014 10:38:00 AM		
1405109-43A	5	6020A_S	SAMP	63805	5/29/2014 10:40:00 AM		
1405109-44A	5	6020A_S	SAMP	63805	5/29/2014 10:42:00 AM		
1405109-45A	5	6020A_S	SAMP	63805	5/29/2014 10:44:00 AM		
1405109-46A	5	6020A_S	SAMP	63805	5/29/2014 10:46:00 AM		
1405109-47A	5	6020A_S	SAMP	63805	5/29/2014 10:48:00 AM		
1405109-39A PDS	5	6020A_S	PDS	63805	5/29/2014 10:52:00 AM		S-flag Ag; SD passes, data accepted. high
1405109-39A MS	5	6020A_S	MS	63805	5/29/2014 10:53:00 AM		S-flag Sb low
1405109-39A MSD	5	6020A_S	MSD	63805	5/29/2014 10:55:00 AM		S-flag Sb low
CCV1-140529	1	6020A_W	CCV	R73425	5/29/2014 11:05:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140401	ICPMS CCV 200/5000 PPB		06/30/2014
MET-H2CAL-1404	ICPMS High Cal2 2000ppb std 8		07/24/2014
MET-HCAL-14042	ICPMS High Cal 500ppb/10ppm s		07/24/2014
MET-ICV-140317	ICPMS ICV 100 ppb		06/15/2014
MET-IS-140416	INTERNAL STANDARD 1 PPM		07/15/2014
MET-L2CAL-14042	ICPMS Low Cal2 1/20ppb std 2		07/24/2014
MET-LCAL-140425	ICPMS Low Cal 10/200ppb std 3		07/24/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		07/24/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		07/24/2014
MET-MCAL-14042	ICPMS Mid Cal 250/5000ppb std		07/24/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140527-	250 PPM Naturals+Al+Fe PDS		08/25/2014
MET-PDS-140527-	10 PPM CUSTOM PDS SOLUTI		08/25/2014
MET-PDS-140527-	10 PPM Ag+Sb PDS		08/25/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		07/15/2014

Run ID: ICP-MS4_140529A **Run No.:** 73425

LCVL1-140529	1	6020A_W	LCVL	R73425	5/29/2014 11:09:00 AM		
CCB1-140529	1	6020A_W	CCB	R73425	5/29/2014 11:11:00 AM		
CCV3-140529	1	6020A_W	CCV	R73425	5/29/2014 11:59:00 AM		
LCVL3-140529	1	6020A_W	LCVL	R73425	5/29/2014 12:02:00 PM		
CCB3-140529	1	6020A_W	CCB	R73425	5/29/2014 12:04:00 PM		
MB-63830	1	6020A_W	MBLK	63830	5/29/2014 12:06:00 PM		
LCS-63830	1	6020A_W	LCS	63830	5/29/2014 12:08:00 PM		
LCSD-63830	1	6020A_W	LCSD	63830	5/29/2014 12:10:00 PM		
1405261-03A	1	6020A_W	SAMP	63830	5/29/2014 12:14:00 PM		
1405261-03A SD	5	6020A_W	SD	63830	5/29/2014 12:16:00 PM		
1405251-61A	1	6020A_W	SAMP	63830	5/29/2014 12:18:00 PM		
1405251-62A	1	6020A_W	SAMP	63830	5/29/2014 12:20:00 PM		
1405251-63A	1	6020A_W	SAMP	63830	5/29/2014 12:22:00 PM		
1405261-01A	1	6020A_W	SAMP	63830	5/29/2014 12:24:00 PM		
1405261-02A	1	6020A_W	SAMP	63830	5/29/2014 12:25:00 PM		
1405261-04A	1	6020A_W	SAMP	63830	5/29/2014 12:27:00 PM		
1405261-05A	1	6020A_W	SAMP	63830	5/29/2014 12:29:00 PM		
1405261-06A	1	6020A_W	SAMP	63830	5/29/2014 12:31:00 PM		
1405261-07A	1	6020A_W	SAMP	63830	5/29/2014 12:33:00 PM		
1405261-03A PDS	1	6020A_W	PDS	63830	5/29/2014 12:35:00 PM		
1405261-03A MS	1	6020A_W	MS	63830	5/29/2014 12:37:00 PM		
1405261-03A MSD	1	6020A_W	MSD	63830	5/29/2014 12:39:00 PM		
CCV4-140529	1	6020A_W	CCV	R73425	5/29/2014 12:40:00 PM		
LCVL4-140529	1	6020A_W	LCVL	R73425	5/29/2014 12:44:00 PM		
CCB4-140529	1	6020A_W	CCB	R73425	5/29/2014 12:46:00 PM		
1405261-08A	1	6020A_W	SAMP	63830	5/29/2014 12:48:00 PM		
1405261-09A	1	6020A_W	SAMP	63830	5/29/2014 12:50:00 PM		
1405261-10A	1	6020A_W	SAMP	63830	5/29/2014 12:52:00 PM		
1405261-11A	1	6020A_W	SAMP	63830	5/29/2014 12:54:00 PM		
1405261-12A	1	6020A_W	SAMP	63830	5/29/2014 12:56:00 PM		
1405261-13A	1	6020A_W	SAMP	63830	5/29/2014 12:58:00 PM		
1405261-14A	1	6020A_W	SAMP	63830	5/29/2014 1:00:00 PM		
1405261-15A	1	6020A_W	SAMP	63830	5/29/2014 1:01:00 PM		
1405261-16A	1	6020A_W	SAMP	63830	5/29/2014 1:03:00 PM		
CCV5-140529	1	6020A_W	CCV	R73425	5/29/2014 1:07:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140401	ICPMS CCV 200/5000 PPB		06/30/2014
MET-H2CAL-1404	ICPMS High Cal2 2000ppb std 8		07/24/2014
MET-HCAL-14042	ICPMS High Cal 500ppb/10ppm s		07/24/2014
MET-ICV-140317	ICPMS ICV 100 ppb		06/15/2014
MET-IS-140416	INTERNAL STANDARD 1 PPM		07/15/2014
MET-L2CAL-14042	ICPMS Low Cal2 1/20ppb std 2		07/24/2014
MET-LCAL-140425	ICPMS Low Cal 10/200ppb std 3		07/24/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		07/24/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		07/24/2014
MET-MCAL-14042	ICPMS Mid Cal 250/5000ppb std		07/24/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140527-	250 PPM Naturals+Al+Fe PDS		08/25/2014
MET-PDS-140527-	10 PPM CUSTOM PDS SOLUTI		08/25/2014
MET-PDS-140527-	10 PPM Ag+Sb PDS		08/25/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		07/15/2014

Run ID: ICP-MS4_140529A **Run No.:** 73425

LCVL5-140529	1	6020A_W	LCVL	R73425	5/29/2014 1:11:00 PM		
CCB5-140529	1	6020A_W	CCB	R73425	5/29/2014 1:13:00 PM		
MB-63798	1	6020A_W	MBLK	63798	5/29/2014 1:15:00 PM		
LCS-63798	1	6020A_W	LCS	63798	5/29/2014 1:21:00 PM		
LCSD-63798	1	6020A_W	LCSD	63798	5/29/2014 1:23:00 PM		
1405265-04A	1	6020A_W	SAMP	63798	5/29/2014 1:26:00 PM		
1405265-04A SD	5	6020A_W	SD	63798	5/29/2014 1:28:00 PM		
1405265-01A	1	6020A_W	SAMP	63798	5/29/2014 1:30:00 PM		
1405265-02A	1	6020A_W	SAMP	63798	5/29/2014 1:32:00 PM		
1405265-03A	1	6020A_W	SAMP	63798	5/29/2014 1:34:00 PM		
1405265-04A PDS	1	6020A_W	PDS	63798	5/29/2014 1:46:00 PM		
1405265-04A MS	1	6020A_W	MS	63798	5/29/2014 1:47:00 PM		
1405265-04A MSD	1	6020A_W	MSD	63798	5/29/2014 1:49:00 PM		
CCV6-140529	1	6020A_W	CCV	R73425	5/29/2014 1:51:00 PM		
LCVL6-140529	1	6020A_W	LCVL	R73425	5/29/2014 1:55:00 PM		
CCB6-140529	1	6020A_W	CCB	R73425	5/29/2014 1:57:00 PM		
1405261-04A	10	6020A_W	SAMP	63830	5/29/2014 1:59:00 PM		
1405261-05A	10	6020A_W	SAMP	63830	5/29/2014 2:01:00 PM		
1405261-12A	10	6020A_W	SAMP	63830	5/29/2014 2:03:00 PM		
CCV7-140529	1	6020A_W	CCV	R73425	5/29/2014 2:05:00 PM		
LCVL7-140529	1	6020A_W	LCVL	R73425	5/29/2014 2:09:00 PM		
CCB7-140529	1	6020A_W	CCB	R73425	5/29/2014 2:11:00 PM		
MB-63851	1	6020A_W	MBLK	63851	5/29/2014 2:49:00 PM		
LCS-63851	1	6020A_W	LCS	63851	5/29/2014 2:51:00 PM		
LCSD-63851	1	6020A_W	LCSD	63851	5/29/2014 2:53:00 PM		
1405265-16A	1	6020A_W	SAMP	63851	5/29/2014 2:57:00 PM		
1405265-16A SD	5	6020A_W	SD	63851	5/29/2014 2:58:00 PM		
1405265-09A	1	6020A_W	SAMP	63851	5/29/2014 3:00:00 PM		
1405265-10A	1	6020A_W	SAMP	63851	5/29/2014 3:02:00 PM		
1405265-11A	1	6020A_W	SAMP	63851	5/29/2014 3:04:00 PM		
1405265-12A	1	6020A_W	SAMP	63851	5/29/2014 3:06:00 PM		
1405265-13A	1	6020A_W	SAMP	63851	5/29/2014 3:08:00 PM		
1405265-14A	1	6020A_W	SAMP	63851	5/29/2014 3:10:00 PM		
1405265-15A	1	6020A_W	SAMP	63851	5/29/2014 3:12:00 PM		
1405265-17A	1	6020A_W	SAMP	63851	5/29/2014 3:14:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140401	ICPMS CCV 200/5000 PPB		06/30/2014
MET-H2CAL-1404	ICPMS High Cal2 2000ppb std 8		07/24/2014
MET-HCAL-14042	ICPMS High Cal 500ppb/10ppm s		07/24/2014
MET-ICV-140317	ICPMS ICV 100 ppb		06/15/2014
MET-IS-140416	INTERNAL STANDARD 1 PPM		07/15/2014
MET-L2CAL-14042	ICPMS Low Cal2 1/20ppb std 2		07/24/2014
MET-LCAL-140425	ICPMS Low Cal 10/200ppb std 3		07/24/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		07/24/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		07/24/2014
MET-MCAL-14042	ICPMS Mid Cal 250/5000ppb std		07/24/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140527-	250 PPM Naturals+Al+Fe PDS		08/25/2014
MET-PDS-140527-	10 PPM CUSTOM PDS SOLUTI		08/25/2014
MET-PDS-140527-	10 PPM Ag+Sb PDS		08/25/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		07/15/2014

DHL Analytical, Inc.

Run ID: ICP-MS4_140529A **Run No.:** 73425

1405265-18A	1	6020A_W	SAMP	63851	5/29/2014 3:16:00 PM		
1405265-16A PDS	1	6020A_W	PDS	63851	5/29/2014 3:18:00 PM		
1405265-16A MS	1	6020A_W	MS	R73425	5/29/2014 3:19:00 PM		
1405265-16A MSD	1	6020A_W	MSD	R73425	5/29/2014 3:21:00 PM		
CCV8-140529	1	6020A_W	CCV	R73425	5/29/2014 3:23:00 PM		
LCVL8-140529	1	6020A_W	LCVL	R73425	5/29/2014 3:27:00 PM		
CCB8-140529	1	6020A_W	CCB	R73425	5/29/2014 3:29:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140401	ICPMS CCV 200/5000 PPB		06/30/2014
MET-H2CAL-1404	ICPMS High Cal2 2000ppb std 8		07/24/2014
MET-HCAL-14042	ICPMS High Cal 500ppb/10ppm s		07/24/2014
MET-ICV-140317	ICPMS ICV 100 ppb		06/15/2014
MET-IS-140416	INTERNAL STANDARD 1 PPM		07/15/2014
MET-L2CAL-14042	ICPMS Low Cal2 1/20ppb std 2		07/24/2014
MET-LCAL-140425	ICPMS Low Cal 10/200ppb std 3		07/24/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		07/24/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		07/24/2014
MET-MCAL-14042	ICPMS Mid Cal 250/5000ppb std		07/24/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140527-	250 PPM Naturals+Al+Fe PDS		08/25/2014
MET-PDS-140527-	10 PPM CUSTOM PDS SOLUTI		08/25/2014
MET-PDS-140527-	10 PPM Ag+Sb PDS		08/25/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		07/15/2014

Sample List

Batch Folder C:\Agilent\ICPMH\1\DATA\140529.b

Acquisition Order

#	Sequence Flow
1	Calibration Standards
2	Unknown Samples
3	Blank Samples

Calibration Standards:

#	Sample Type	Sample Name	Comment	Vial#	File Name
1	CCB		CAL ICPMS_TW	1101	
2	CCB		CAL ICPMS_TW	1101	
3	CCB		CAL ICPMS_TW	1101	
4	CCB		CAL ICPMS_TW	1102	
5	CCB		CAL ICPMS_TW	1102	
6	CCB		CAL ICPMS_TW	1102	
7	CCB		CAL ICPMS_TW	1102	
8	CCB		CAL ICPMS_TW	1103	
9	CCB		CAL ICPMS_TW	1103	
10	CCB		CAL ICPMS_TW	1103	
11	CalBlk	BLANK STD 1	CAL ICPMS_TW	2101	
12	CalStd	Cal01	CAL ICPMS_TW	2102	
13	CalStd	Cal02	CAL ICPMS_TW	2103	
14	CalStd	Cal03	CAL ICPMS_TW	2104	
15	CalStd	Cal04	CAL ICPMS_TW	2105	
16	CalStd	Cal05	CAL ICPMS_TW	2106	
17	CalStd	Cal06	CAL ICPMS_TW	2107	
18	CalStd	Cal07	CAL ICPMS_TW	2108	
19	ICB	BLANK	CCB ICPMS_TW	1101	
20	ICB	BLANK	CCB ICPMS_TW	1102	

#	Level	Dilution	Skip
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11	1		
12	2		
13	3		
14	4		
15	5		
16	6		
17	7		
18	8		
19			

Sample List

20

#	Sample Type	Sample Name	Comment	Vial#	File Name
21	ICSA	ICSA-140529	ICSAICPMS_TW	2109	
22	ICSB	ICSAB-140529	ICSBICPMS_TW	2110	
23	ICB	BLANK	CCB ICPMS_TW	1101	
24	ICB	BLANK	CCB ICPMS_TW	1102	
25	ICV	ICV-140529	ICV ICPMS_TW	2111	
26	ICB	ICB-140529	ICB ICPMS_TW	1101	
27	LLICV	LCVL-140529	LCVLICPMS_TW	2112	
28	ICB	ICB-140529	ICB ICPMS_TW	1102	
29	ICB	ICB-140529	ICB ICPMS_TW	1103	
30	PB	MB-63805	MBLK6020A_S	2201	
31	LCS_S	LCS-63805	LCS 6020A_S	2202	
32	LCS_S	LCSD-63805	LCSD6020A_S	2203	
33	CCB	RINSE	CCB ICPMS_TW	1101	
34	AllRef	1405109-39A	SAMP6020A_S	2204	
35	SD	1405109-39A SD	SD 6020A_S	2205	
36	Sample	1405109-40A	SAMP6020A_S	2206	
37	Sample	1405109-41A	SAMP6020A_S	2207	
38	Sample	1405109-42A	SAMP6020A_S	2208	
39	Sample	1405109-43A	SAMP6020A_S	2209	
40	Sample	1405109-44A	SAMP6020A_S	2210	

#	Level	Dilution	Skip
21			
22			
23			
24			
25			
26			
27			
28			
29			
30		5	
31		5	
32		5	
33			
34		5	
35		25	
36		5	
37		5	
38		5	
39		5	
40		5	

#	Sample Type	Sample Name	Comment	Vial#	File Name
41	Sample	1405109-45A	SAMP6020A_S	2211	
42	Sample	1405109-46A	SAMP6020A_S	2212	
43	Sample	1405109-47A	SAMP6020A_S	2301	
44	Sample	1405130-13B	SAMPICPMS_TS	2302	
45	PDS	1405109-39A PDS	PDS 6020A_S	2303	

Sample List

46	MS_S	1405109-39A MS	MS 6020A_S	2304
47	MS_S	1405109-39A MSD	MSD 6020A_S	2305
48	CCV	CCV1-140529	CCV ICPMS_TW	1207
49	CCB	CCB1-140529	CCB ICPMS_TW	1102
50	LLCCV	LCVL1-140529	LCVLICPMS_TW	2112
51	CCB	CCB1-140529	CCB ICPMS_TW	1103
52	CCV	CCV1-140529	CCV ICPMS_TW	1207
53	CCB	CCB1-140529	CCB ICPMS_TW	1102
54	LLCCV	LCVL1-140529	LCVLICPMS_TW	2112
55	CCB	CCB1-140529	CCB ICPMS_TW	1103
56	Sample	1405130-14B	SAMPICPMS_TS	2306
57	Sample	1405130-15B	SAMPICPMS_TS	2307
58	Sample	1405130-16B	SAMPICPMS_TS	2308
59	Sample	1405130-17B	SAMPICPMS_TS	2309
60	Sample	1405130-18B	SAMPICPMS_TS	2310

#	Level	Dilution	Skip
41		5	
42		5	
43		5	
44		5	
45		5	
46		5	
47		5	
48			
49			
50			
51			
52			
53			
54			
55			
56		5	
57		5	
58		5	
59		5	
60		5	

#	Sample Type	Sample Name	Comment	Vial#	File Name
61	Sample	1405130-19B	SAMPICPMS_TS	2311	
62	Sample	1405130-20B	SAMPICPMS_TS	2312	
63	Sample	1405130-21B	SAMPICPMS_TS	2401	
64	Sample	1405130-22B	SAMPICPMS_TS	2402	
65	Sample	1405130-23B	SAMPICPMS_TS	2403	
66	CCV	CCV2-140529	CCV ICPMS_TW	1207	
67	CCB	CCB2-140529	CCB ICPMS_TW	1102	
68	LLCCV	LCVL2-140529	LCVLICPMS_TW	2112	
69	CCB	CCB2-140529	CCB ICPMS_TW	1103	
70	AllRef	1405109-39A	SAMP6020A_S	2404	
71	SD	1405109-39A SD	SD 6020A_S	2405	
72	Sample	1405130-15B	SAMPICPMS_TS	2406	
73	Sample	1405130-18B	SAMPICPMS_TS	2407	

Sample List

74	Sample	1405130-19B	SAMPICPMS_TS	2408
75	Sample	1405130-20B	SAMPICPMS_TS	2409
76	Sample	1405130-21B	SAMPICPMS_TS	2410
77	Sample	1405130-22B	SAMPICPMS_TS	2411
78	Sample	1405130-23B	SAMPICPMS_TS	2412
79	PDS	1405109-39A PDS	PDS 6020A_S	2501
80	CCV	CCV3-140529	CCV ICPMS_TW	1207

#	Level	Dilution	Skip
61		5	
62		5	
63		5	
64		5	
65		5	
66			
67			
68			
69			
70		50	
71		250	
72		50	
73		50	
74		50	
75		50	
76		50	
77		50	
78		50	
79		50	
80			

#	Sample Type	Sample Name	Comment	Vial#	File Name
81	CCB	CCB3-140529	CCB ICPMS_TW	1102	
82	LLCCV	LCVL3-140529	LCVLICPMS_TW	2512	
83	CCB	CCB3-140529	CCB ICPMS_TW	1103	
84	PB_W	MB-63830	MBLK6020A_W	3101	
85	LCS_W	LCS-63830	LCS 6020A_W	3102	
86	LCS_W	LCSD-63830	LCSD6020A_W	3103	
87	CCB	RINSE	CCB ICPMS_TW	1101	
88	AllRef	1405261-03A	SAMP6020A_W	3104	
89	SD	1405261-03A SD	SD 6020A_W	3105	
90	SAMP_W	1405251-61A	SAMP6020A_W	3106	
91	SAMP_W	1405251-62A	SAMP6020A_W	3107	
92	SAMP_W	1405251-63A	SAMP6020A_W	3108	
93	SAMP_W	1405261-01A	SAMP6020A_W	3109	
94	SAMP_W	1405261-02A	SAMP6020A_W	3110	
95	SAMP_W	1405261-04A	SAMP6020A_W	3111	
96	SAMP_W	1405261-05A	SAMP6020A_W	3112	
97	SAMP_W	1405261-06A	SAMP6020A_W	3201	
98	SAMP_W	1405261-07A	SAMP6020A_W	3202	
99	PDS	1405261-03A PDS	PDS 6020A_W	3203	
100	MS_S	1405261-03A MS	MS 6020A_W	3204	

Sample List

#	Level	Dilution	Skip
81			
82			
83			
84		1	
85		1	
86		1	
87			
88		1	
89		5	
90		1	
91		1	
92		1	
93		1	
94		1	
95		1	
96		1	
97		1	
98		1	
99		1	
100		1	

#	Sample Type	Sample Name	Comment	Vial#	File Name
101	MS_S	1405261-03A MSD	MSD 6020A_W	3205	
102	CCV	CCV4-140529	CCV ICPMS_TW	1207	
103	CCB	CCB4-140529	CCB ICPMS_TW	1102	
104	LLCCV	LCVL4-140529	LCVLICPMS_TW	2512	
105	CCB	CCB4-140529	CCB ICPMS_TW	1103	
106	SAMP_W	1405261-08A	SAMP6020A_W	3206	
107	SAMP_W	1405261-09A	SAMP6020A_W	3207	
108	SAMP_W	1405261-10A	SAMP6020A_W	3208	
109	SAMP_W	1405261-11A	SAMP6020A_W	3209	
110	SAMP_W	1405261-12A	SAMP6020A_W	3210	
111	SAMP_W	1405261-13A	SAMP6020A_W	3211	
112	SAMP_W	1405261-14A	SAMP6020A_W	3212	
113	SAMP_W	1405261-15A	SAMP6020A_W	3301	
114	SAMP_W	1405261-16A	SAMP6020A_W	3302	
115	SAMP_W	1405260-02C	SAMPICPMS_TW	3303	
116	CCV	CCV5-140529	CCV ICPMS_TW	1207	
117	CCB	CCB5-140529	CCB ICPMS_TW	1102	
118	LLCCV	LCVL5-140529	LCVLICPMS_TW	2512	
119	CCB	CCB5-140529	CCB ICPMS_TW	1103	
120	PB_W	MB-63798	MBLK6020A_W	3401	

#	Level	Dilution	Skip
101		1	
102			
103			
104			
105			
106		1	
107		1	

Sample List

108		1
109		1
110		1
111		1
112		1
113		1
114		1
115		1
116		
117		
118		
119		
120		1

#	Sample Type	Sample Name	Comment	Vial#	File Name
121	PB_W	MB-63701 TCLP	MBLKTCLP_MET	3402	
122	PB_W	MB-63728 TCLP	MBLKTCLP_MET	3403	
123	LCS_W	LCS-63798	LCS 6020A_W	3404	
124	LCS_W	LCSD-63798	LCSD6020A_W	3405	
125	CCB	RINSE	CCB ICPMS_TW	1101	
126	AllRef	1405265-04A	SAMP6020A_W	3406	
127	SD	1405265-04A SD	SD 6020A_W	3407	
128	SAMP_W	1405265-01A	SAMP6020A_W	3408	
129	SAMP_W	1405265-02A	SAMP6020A_W	3409	
130	SAMP_W	1405265-03A	SAMP6020A_W	3410	
131	SAMP_W	1405245-01A	SAMPTCLP_MET	3411	
132	SAMP_W	1405223-01A	SAMPTCLP_MET	3412	
133	SAMP_W	1405223-02A	SAMPTCLP_MET	3501	
134	SAMP_W	1405223-03A	SAMPTCLP_MET	3502	
135	SAMP_W	1405241-01A	SAMPICPMS_TW	3503	
136	PDS	1405265-04A PDS	PDS 6020A_W	3504	
137	MS_S	1405265-04A MS	MS 6020A_W	3505	
138	MS_S	1405265-04A MSD	MSD 6020A_W	3506	
139	CCV	CCV6-140529	CCV ICPMS_TW	1207	
140	CCB	CCB6-140529	CCB ICPMS_TW	1102	

#	Level	Dilution	Skip
121		1	
122		1	
123		1	
124		1	
125			
126		1	
127		5	
128		1	
129		1	
130		1	
131		1	
132		1	
133		1	
134		1	
135		1	

Sample List

136		1
137		1
138		1
139		
140		

#	Sample Type	Sample Name	Comment	Vial#	File Name
141	LLCCV	LCVL6-140529	LCVLICPMS_TW	2511	
142	CCB	CCB6-140529	CCB ICPMS_TW	1103	
143	SAMP_W	1405261-04A	SAMP6020A_W	3304	
144	SAMP_W	1405261-05A	SAMP6020A_W	3305	
145	SAMP_W	1405261-12A	SAMP6020A_W	3306	
146	CCV	CCV7-140529	CCV ICPMS_TW	1207	
147	CCB	CCB7-140529	CCB ICPMS_TW	1102	
148	LLCCV	LCVL7-140529	LCVLICPMS_TW	2512	
149	CCB	CCB7-140529	CCB ICPMS_TW	1103	
150	PB_W	MB-63851	MBLK6020A_W	3101	
151	LCS_W	LCS-63851	LCS 6020A_W	3102	
152	LCS_W	LCSD-63851	LCSD6020A_W	3103	
153	CCB	RINSE	CCB ICPMS_TW	1101	
154	AllRef	1405265-16A	SAMP6020A_W	3104	
155	SD	1405265-16A SD	SD 6020A_W	3105	
156	SAMP_W	1405265-09A	SAMP6020A_W	3106	
157	SAMP_W	1405265-10A	SAMP6020A_W	3107	
158	SAMP_W	1405265-11A	SAMP6020A_W	3108	
159	SAMP_W	1405265-12A	SAMP6020A_W	3109	
160	SAMP_W	1405265-13A	SAMP6020A_W	3110	

#	Level	Dilution	Skip
141			
142			
143		10	
144		10	
145		10	
146			
147			
148			
149			
150		1	
151		1	
152		1	
153			
154		1	
155		5	
156		1	
157		1	
158		1	
159		1	
160		1	

#	Sample Type	Sample Name	Comment	Vial#	File Name
161	SAMP_W	1405265-14A	SAMP6020A_W	3111	

Sample List

162	SAMP_W	1405265-15A	SAMP6020A_W	3112
163	SAMP_W	1405265-17A	SAMP6020A_W	3201
164	SAMP_W	1405265-18A	SAMP6020A_W	3202
165	PDS	1405265-16A PDS	PDS 6020A_W	3203
166	MS_S	1405265-16A MS	MS 6020A_W	3204
167	MS_S	1405265-16A MSD	MSD 6020A_W	3205
168	CCV	CCV8-140529	CCV ICPMS_TW	1207
169	CCB	CCB8-140529	CCB ICPMS_TW	1102
170	LLCCV	LCVL8-140529	LCVLICPMS_TW	2511
171	CCB	CCB8-140529	CCB ICPMS_TW	1103
172	PB	MB-63857	MBLKICPMS_TS	3301
173	LCS_S	LCS-63857	LCS ICPMS_TS	3302
174	LCS_S	LCSD-63857	LCSDICPMS_TS	3303
175	CCB	RINSE	CCB ICPMS_TW	1101
176	AllRef	1405322-01A	SAMPICPMS_TS	3304
177	SD	1405322-01A SD	SD ICPMS_TS	3305
178	Sample	1405322-02A	SAMPICPMS_TS	3306
179	Sample	1405322-03A	SAMPICPMS_TS	3307
180	Sample	1405322-04A	SAMPICPMS_TS	3308

#	Level	Dilution	Skip
161		1	
162		1	
163		1	
164		1	
165		1	
166		1	
167		1	
168			
169			
170			
171			
172		5	
173		5	
174		5	
175			
176		5	
177		25	
178		5	
179		5	
180		5	

#	Sample Type	Sample Name	Comment	Vial#	File Name
181	Sample	1405322-05A	SAMPICPMS_TS	3309	
182	PDS	1405322-01A PDS	PDS ICPMS_TS	3310	
183	MS_S	1405322-01A MS	MS ICPMS_TS	3311	
184	MS_S	1405322-01A MSD	MSD ICPMS_TS	3312	
185	AllRef	1405322-01A	SAMPICPMS_TS	3401	
186	SD	1405322-01A SD	SD ICPMS_TS	3402	
187	PDS	1405322-01A PDS	PDS ICPMS_TS	3403	
188	CCV	CCV9-140529	CCV ICPMS_TW	1207	
189	CCB	CCB9-140529	CCB ICPMS_TW	1102	

Sample List

190	LLCCV	LCVL9-140529	LCVLICPMS_TW	2511
191	CCB	CCB9-140529	CCB ICPMS_TW	1103

#	Level	Dilution	Skip
181		5	
182		5	
183		5	
184		5	
185		50	
186		250	
187		50	
188			
189			
190			
191			

Unknown Samples:

Blank Samples:

Periodic Block

#	Block Name	Period	Unit	Reset By

Sublist

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/28/2014 11:15:05 AM**
Digestion:
Prep End Date:

Prep Batch **63830** Prep Code: **3005A** Technician: **Ryan Oliver**

Prep Factor Units: **mL/mL**

Equipment List
Thermometer #77
Hot Block #2

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1405251-61A	Aqueous		50	50	1.000	1 of 1
1405251-62A	Aqueous		50	50	1.000	1 of 1
1405251-63A	Aqueous		50	50	1.000	1 of 1
1405260-01C	Soil		50	50	1.000	1 of 1
1405260-02C	Aqueous		50	50	1.000	1 of 1
1405261-01A	Aqueous		50	50	1.000	1 of 1
1405261-02A	Aqueous		50	50	1.000	1 of 1
1405261-03A	Aqueous		50	50	1.000	of 3
1405261-03AMS	Aqueous		50	50	1.000	of
1405261-03AMSD	Aqueous		50	50	1.000	of
1405261-04A	Aqueous		50	50	1.000	1 of 1
1405261-05A	Aqueous		50	50	1.000	1 of 1
1405261-06A	Aqueous		50	50	1.000	1 of 1
1405261-07A	Aqueous		50	50	1.000	1 of 1
1405261-08A	Aqueous		50	50	1.000	1 of 1
1405261-09A	Aqueous		50	50	1.000	1 of 1
1405261-10A	Aqueous		50	50	1.000	1 of 1
1405261-11A	Aqueous		50	50	1.000	1 of 1
1405261-12A	Aqueous		50	50	1.000	1 of 1
1405261-13A	Aqueous		50	50	1.000	1 of 1
1405261-14A	Equip Blank		50	50	1.000	1 of 1
1405261-15A	Aqueous		50	50	1.000	1 of 1
LCS-63830	Aqueous		50	50	1.000	of
LCSD-63830	Aqueous		50	50	1.000	of
MB-63830	Aqueous		50	50	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
7684	Nitric Acid (Trace Metal Grade)	1	ml	08/07/2015
8095	Hydrochloric Acid (Trace Metal Grade)	1	ml	07/05/2016
8174	Digestion Vessels	69	ml	11/23/2014

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-140109-01	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/06/2015
MET-140109-02	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/10/2015
MET-SPIKE-140522-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	08/20/2014
MET-SPIKE-140522-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MS	0.2	06/22/2014
MET-SPIKE-140522-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	06/22/2014

REVIEWED
By Evelyn Ferrero at 6:16:38 PM, 5/29/2014

Calibration Summary Report

Date Acquired 5/29/2014 9:46
Data Batch 140529.b

Level	Calibration File Name
1	011CALB.d
2	012CALS.d
3	013CALS.d
4	014CALS.d
5	015CALS.d
6	016CALS.d
7	017CALS.d
8	018CALS.d

Calibration Table

Ele	Corr Coef	Curve Equation
As	0.9999	y = 0.0011 * x + 2.1565E-004
Be	1.0000	y = 3.8186E-005 * x + 4.3048E-007
B	0.9992	y = 1.7754E-005 * x + 0.0025
Na	0.9999	y = 5.0496E-004 * x + 0.0448
Mg	0.9999	y = 2.6973E-004 * x + 5.2908E-004
Al	0.9995	y = 1.4260E-004 * x + 1.8810E-004
K	0.9999	y = 3.2298E-004 * x + 0.0436
Ca	0.9999	y = 1.9369E-005 * x + 1.7781E-004
Ti	0.9998	y = 1.1750E-004 * x + 7.4045E-006
V	1.0000	y = 0.0037 * x + 0.0015
Cr	1.0000	y = 0.0043 * x + 0.0020
Mn	0.9999	y = 0.0029 * x + 2.4309E-004
Fe	0.9998	y = 0.0042 * x + 0.0119
Co	0.9999	y = 0.0091 * x + 2.4401E-004
Ni	1.0000	y = 0.0024 * x + 0.0018
Cu	1.0000	y = 0.0067 * x + 0.0013
Zn	0.9999	y = 0.0014 * x + 3.5135E-004
Se	1.0000	y = 8.2071E-005 * x + 8.7256E-005
Sr	0.9998	y = 5.7764E-004 * x + 8.8735E-006
Mo	0.9998	y = 3.8196E-004 * x + 4.9318E-006
Ag	0.9998	y = 0.0012 * x + 1.9287E-006
Cd	1.0000	y = 1.9771E-004 * x + 4.5392E-006
Sn	0.9998	y = 4.4848E-004 * x + 7.8381E-005
Sb	0.9999	y = 7.1918E-004 * x + 2.5262E-005
Tl	1.0000	y = 0.0014 * x + 2.6694E-005
Ba	1.0000	y = 2.3492E-004 * x + 5.4033E-006
Pb	1.0000	y = 0.0019 * x + 1.9091E-004

Calibration Summary Report

Level 7 Cal

Ele	Conc	Calc	%Rec
As	500	480.75	96
Be	500	515.21	103
B	500	562.27	112
Na	10000	10351.96	104
Mg	10000	10214.22	102
Al	10000	10148.92	101
K	10000	10274.48	103
Ca	10000	10063.74	101
Ti	500	534.18	107
V	500	512.11	102
Cr	500	515.81	103
Mn	500	515.88	103
Fe	10000	10092.05	101
Co	500	519.15	104
Ni	500	507.53	102
Cu	500	504.76	101
Zn	500	476.50	95
Se	500	504.47	101
Sr	500	532.86	107
Mo	500	535.49	107
Ag	500	495.52	99
Cd	500	501.22	100
Sn	500	538.71	108
Sb	500	498.53	100
Tl	500	499.67	100
Ba	500	491.30	98
Pb	500	504.45	101

Level 8 Cal

Ele	Conc	Calc	%Rec
As	2000	2006.39	100
Be	2000	1996.90	100
B	2000	1984.91	101
Na	25000	24862.96	101
Mg	25000	24881.56	100
K	25000	24889.96	100
Ti	2000	1990.02	101
V	2000	1997.93	100
Cr	2000	1995.76	100
Mn	2000	1998.00	100
Co	2000	1993.99	100
Ni	2000	1997.37	100
Cu	2000	1997.44	100
Zn	2000	2007.50	100
Se	2000	1998.69	100
Sr	2000	1988.31	101
Mo	2000	1988.68	101
Cd	2000	1999.41	100
Sn	2000	1989.01	101
Tl	2000	2000.49	100
Ba	2000	2002.81	100
Pb	2000	1998.62	100

Current Signal

Mass	Range	Count	Avg. Count	RSD [%]
59	2000	1210	1178.4	4.25
89	2000	1453	1450.1	2.50
140	5000	3764	3622.7	2.81
205	5000	3287	3192.7	2.47
156/140	1	0.611 %	0.567 %	13.22
51	200	99	97.1	9.99
56	5000	2923	2868.2	1.46
75	20	13	12.3	14.65
78	50	8	12.6	51.93
Integration Time [sec]		0.10		

Plasma Parameters

RF Power	1550	Carrier Gas	0.60
RF Matching	1.90	Option Gas	0.0
Smpl Depth	8.0	Nebulizer Pump	0.10
S/C Temp	2		

Lenses Parameters

Extract 1	0.0	Omega Lens	12.0
Extract 2	-200.0	Cell Entrance	-40
Omega Bias	-90	Cell Exit	-60
Deflect	0.0		

Cell Parameters

Use Gas	true	3rd Gas Flow	0
He Flow	4.2	OctP Bias	-18.0
H2 Flow	0.0	OctP RF	150
Energy Discrimination	3.0		

Meters

Water Temp	17.5	℃	Carrier Gas	0.60	L/min
MU./Dil. Gas	0.45	L/min	Reflected Power	11	W
Forward Power	1550	W			

Current Signal

Mass	Range	Count	Avg. Count	RSD [%]
59	2000	1215	1217.5	2.80
89	2000	1412	1477.2	2.39
140	5000	3453	3712.8	4.22
205	5000	3394	3158.4	4.65
156/140	1	0.463 %	0.497 %	42.37
51	200	94	90.2	11.70
56	5000	2542	2720.4	4.38
75	20	10	7.2	44.49
78	50	21	13.5	49.30
Integration Time [sec]		0.10		

Plasma Parameters

RF Power	1550	Carrier Gas	0.60
RF Matching	1.90	Option Gas	0.0
Smpl Depth	8.0	Nebulizer Pump	0.10
S/C Temp	2		

Lenses Parameters

Extract 1	0.0	Omega Lens	12.0
Extract 2	-200.0	Cell Entrance	-40
Omega Bias	-90	Cell Exit	-60
Deflect	0.0		

Cell Parameters

Use Gas	true	3rd Gas Flow	0
He Flow	4.2	OctP Bias	-18.0
H2 Flow	0.0	OctP RF	150
Energy Discrimination	3.0		

Meters

Water Temp	17.4	℃	Carrier Gas	0.60	L/min
MU./Dil. Gas	0.45	L/min	Reflected Power	12	W
Forward Power	1549	W			

US EPA Tune Check Sample Report

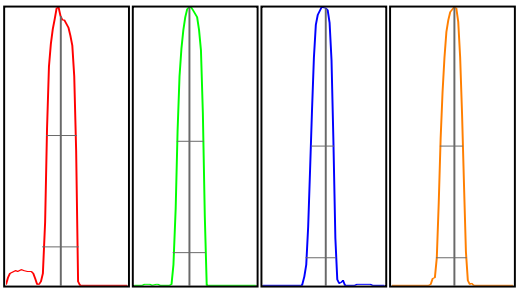
Batch Folder C:\Agilent\ICPMH\1\DATA\DHL TEMPLATE 1.b
Report Comment
Instrument Name ICPMS4 JP12361998

[No gas]

Mass	Count (Mean)	RSD% (Actual)	RSD% (Required)	RSD% (Flag)
7	3068	2.02	5.00	
59	668099	0.70	5.00	
115	947314	1.41	5.00	
205	1596726	2.42	5.00	

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
7	3107	3124	3007	3108	2995
59	662835	668195	663981	672428	673055
115	936328	958717	955217	956636	929670
205	1654368	1607289	1599111	1566672	1556188

Integration Time [sec] = 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	Width-X% (Actual)	Width-X% (Required)	Width-X% (Flag)
7	450	6.90	6.9 - 7.1		0.811	0.850	
59	111581	58.90	58.9 - 59.1		0.767	0.850	
115	179032	115.05	114.9 - 115.1		0.714	0.850	
205	312021	205.05	204.9 - 205.1		0.709	0.850	

X% = 10 **Int Time [sec] =** 0.1 **Acq Time [sec] =** 135.05 **Y Axis =** Linear

Tune Parameters

Plasma Paramters

ParameterName	Value	Unit	ParameterName	Value	Unit
RF Power	1550	W	Nebulizer Pump	0.10	rps
RF Matching	1.90	V	S/C Temp	2	℃
Smpl Depth	8.0	mm	Gas Switch	Dilution Gas	
Carrier Gas	0.60	L/min	Makeup/Dilution Gas	0.45	L/min
Option Gas	0.0	%			

Lenses Parameters

ParameterName	Value	Unit	ParameterName	Value	Unit
Extract 1	0.0	V	Cell Entrance	-40	V
Extract 2	-200.0	V	Cell Exit	-60	V
Omega Bias	-90	V	Deflect	0.0	V
Omega Lens	12.0	V	Plate Bias	-60	V

Cell Parameters

ParameterName	Value	Unit	ParameterName	Value	Unit
Use Gas	true		OctP Bias	-18.0	V
He Flow	4.2	mL/min	OctP RF	150	V
H2 Flow	0.0	mL/min	Energy Discrimination	3.0	V
3rd Gas Flow	0	%			

P/A Factor Tuning Report

Current Sample

Sample Name: CCB9-140529
Data File: 191_CCB.d
Acquired: 05/29/2014 16:07:28

Detector Parameters and P/A Factors

Discriminator: 4.5 mV
AnalogHV: 1602 V
PulseHV: 1123 V

Acquired: 05/29/2014 09:15:11

Mass[u]	Element	P/A Factor
6	Li	0.091771
9	Be	0.105720
23	Na	0.115329
24	Mg	0.121689
27	Al	0.126097
39	K	0.124109
45	Sc	0.126535
48		0.127749
51	V	0.130574
52	Cr	0.134518
55	Mn	0.137403
59	Co	0.141813
60	Ni	0.143454
63	Cu	0.146586
66	Zn	0.146858
72		0.145230
74	Ge	0.145813
75	As	0.144138
88	Sr	0.145518
89		0.144112
95		0.144776
97	Mo	0.145656
98	Mo	0.145659
99	[Mo]	0.148441
101		0.148849
105		0.153271
111	Cd	0.154923
114	Cd	0.156176
115	In	0.155708
118	Sn	0.155158
121		0.154980
123	Sb	0.155476
135	Ba	0.154116
138		0.157111
175		0.163438
193		0.165276
205	Tl	0.167797
206	[Pb]	0.167745
207	[Pb]	0.168694
208	Pb	0.167873
209	Bi	0.168669
232		0.167925
238	U	0.168291
44	Ca	Signal too low
78	Se	Signal too low
107	Ag	Signal too low
172		Signal too low

Calibration Blank Report

Date Acquired	5/29/2014 9:46	Sample Name	BLANK STD 1
Data Batch	140529.b	Comment	CAL ICPMS_TW
Data File Name	011CALB.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	1	173.21
11	B	45	3854	2.46
23	Na	45	68188	0.99
24	Mg	45	806	4.35
27	Al	45	287	14.15
39	K	45	66335	0.35
44	Ca	45	270	14.97
47	Ti	45	11	96.43
51	V	45	2327	6.13
52	Cr	45	3064	5.91
55	Mn	45	370	3.25
56	Fe	45	18038	3.40
59	Co	72	262	9.71
60	Ni	72	1911	1.62
63	Cu	72	1440	2.35
66	Zn	72	378	11.38
75	As	72	232	2.72
78	Se	72	94	17.32
88	Sr	115	102	29.59
95	Mo	115	57	35.29
107	Ag	115	22	8.65
111	Cd	115	52	16.07
118	Sn	115	902	3.23
121	Sb	115	291	13.66
137	Ba	115	62	43.29
205	Tl	209	598	6.97
208	Pb	209	4276	1.44

QC ISTD Table

Mass	Name	CPS	%RSD
45	Sc	1522183	2.30
72	Ge	1074520	1.02
115	In	11514007	1.43
209	Bi	22396997	0.41

Calibration Standard Report

Date Acquired	5/29/2014 9:48	Sample Name	Cal01
Data Batch	140529.b	Comment	CAL ICPMS_TW
Data File Name	012CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	63	24.53
11	B	45	3567	8.21
23	Na	45	84472	0.56
24	Mg	45	8816	3.02
27	Al	45	4226	2.13
39	K	45	76261	0.06
44	Ca	45	791	6.69
47	Ti	45	209	31.00
51	V	45	7462	2.13
52	Cr	45	8998	1.99
55	Mn	45	4480	2.18
56	Fe	45	131828	0.86
59	Co	72	9353	1.71
60	Ni	72	4426	4.99
63	Cu	72	8981	1.67
66	Zn	72	1760	1.55
75	As	72	1262	2.79
78	Se	72	201	9.04
88	Sr	115	6326	3.66
95	Mo	115	4281	3.17
107	Ag	115	12538	1.04
111	Cd	115	2132	3.47
118	Sn	115	5821	3.83
121	Sb	115	7718	2.66
137	Ba	115	2596	5.10
205	Tl	209	28250	1.14
208	Pb	209	42023	0.83

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1494904	1.66	1522183	98.21	70	120	
72	Ge	1058032	0.20	1074520	98.47	70	120	
115	In	11384747	0.73	11514007	98.88	70	120	
209	Bi	22417339	0.84	22396997	100.09	70	120	

Calibration Standard Report

Date Acquired	5/29/2014 9:50	Sample Name	Cal02
Data Batch	140529.b	Comment	CAL ICPMS_TW
Data File Name	013CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	517	5.79
11	B	45	3447	1.71
23	Na	45	214279	0.26
24	Mg	45	78107	0.76
27	Al	45	39445	1.62
39	K	45	158370	0.39
44	Ca	45	5683	1.21
47	Ti	45	1840	4.15
51	V	45	52804	0.94
52	Cr	45	63763	1.96
55	Mn	45	40522	1.68
56	Fe	45	1147780	0.54
59	Co	72	92457	0.26
60	Ni	72	27199	1.20
63	Cu	72	69199	1.30
66	Zn	72	13995	0.10
75	As	72	10719	1.50
78	Se	72	945	2.54
88	Sr	115	63002	1.77
95	Mo	115	41558	1.31
107	Ag	115	126078	1.10
111	Cd	115	20712	2.30
118	Sn	115	49218	1.17
121	Sb	115	72776	1.44
137	Ba	115	23912	1.86
205	Tl	209	278504	0.75
208	Pb	209	382434	0.29

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1455063	2.07	1522183	95.59	70	120	
72	Ge	1046043	0.29	1074520	97.35	70	120	
115	In	11024871	2.28	11514007	95.75	70	120	
209	Bi	21658082	1.06	22396997	96.70	70	120	

Calibration Standard Report

Date Acquired	5/29/2014 9:52	Sample Name	Cal03
Data Batch	140529.b	Comment	CAL ICPMS_TW
Data File Name	014CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	2782	4.07
11	B	45	4472	4.24
23	Na	45	824324	1.05
24	Mg	45	406271	2.51
27	Al	45	205433	2.79
39	K	45	540224	2.23
44	Ca	45	28751	0.83
47	Ti	45	9178	2.85
51	V	45	263999	1.56
52	Cr	45	319190	1.22
55	Mn	45	209474	1.19
56	Fe	45	6182071	0.86
59	Co	72	481585	0.15
60	Ni	72	130823	1.77
63	Cu	72	348827	0.66
66	Zn	72	70817	0.59
75	As	72	55363	1.03
78	Se	72	4395	1.92
88	Sr	115	325811	0.28
95	Mo	115	219427	0.24
107	Ag	115	653690	1.73
111	Cd	115	107851	2.45
118	Sn	115	252422	1.36
121	Sb	115	379430	1.40
137	Ba	115	124150	0.87
205	Tl	209	1463382	1.72
208	Pb	209	1981970	0.07

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1528204	2.86	1522183	100.40	70	120	
72	Ge	1030077	1.28	1074520	95.86	70	120	
115	In	11147998	1.34	11514007	96.82	70	120	
209	Bi	21714969	0.23	22396997	96.95	70	120	

Calibration Standard Report

Date Acquired	5/29/2014 9:54	Sample Name	Cal04
Data Batch	140529.b	Comment	CAL ICPMS_TW
Data File Name	015CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	5656	1.52
11	B	45	6119	3.52
23	Na	45	1632265	2.75
24	Mg	45	824200	1.29
27	Al	45	411615	0.40
39	K	45	1031449	0.04
44	Ca	45	57958	1.35
47	Ti	45	18716	2.43
51	V	45	536694	0.10
52	Cr	45	646103	0.30
55	Mn	45	423691	0.54
56	Fe	45	12332907	0.79
59	Co	72	967385	0.55
60	Ni	72	260744	0.29
63	Cu	72	708964	0.02
66	Zn	72	144846	0.68
75	As	72	111061	0.42
78	Se	72	8734	1.47
88	Sr	115	664539	1.04
95	Mo	115	443641	0.38
107	Ag	115	1331128	0.13
111	Cd	115	217065	0.64
118	Sn	115	511122	0.37
121	Sb	115	772297	0.48
137	Ba	115	254556	1.19
205	Tl	209	3068566	1.47
208	Pb	209	4064908	1.03

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1489029	2.93	1522183	97.82	70	120	
72	Ge	1030945	0.38	1074520	95.94	70	120	
115	In	10936999	1.11	11514007	94.99	70	120	
209	Bi	21699698	1.80	22396997	96.89	70	120	

Calibration Standard Report

Date Acquired	5/29/2014 9:56	Sample Name	Cal05
Data Batch	140529.b	Comment	CAL ICPMS_TW
Data File Name	016CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	14070	1.34
11	B	45	10668	1.52
23	Na	45	3828179	1.21
24	Mg	45	2088553	0.95
27	Al	45	1016617	0.31
39	K	45	2497013	1.60
44	Ca	45	142388	1.62
47	Ti	45	45674	2.42
51	V	45	1354150	2.11
52	Cr	45	1633896	2.37
55	Mn	45	1046033	0.67
56	Fe	45	30599095	0.80
59	Co	72	2450056	2.05
60	Ni	72	648936	0.30
63	Cu	72	1808498	1.86
66	Zn	72	356851	0.75
75	As	72	275850	0.64
78	Se	72	21594	0.60
88	Sr	115	1744127	1.71
95	Mo	115	1116446	1.10
107	Ag	115	3365328	1.73
111	Cd	115	546647	0.99
118	Sn	115	1272408	0.53
121	Sb	115	2003461	1.37
137	Ba	115	632676	0.80
205	Tl	209	7672713	1.30
208	Pb	209	10379311	0.73

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1504282	1.80	1522183	98.82	70	120	
72	Ge	1045955	0.42	1074520	97.34	70	120	
115	In	10955998	1.56	11514007	95.15	70	120	
209	Bi	22241844	1.40	22396997	99.31	70	120	

Calibration Standard Report

Date Acquired	5/29/2014 9:58	Sample Name	Cal06
Data Batch	140529.b	Comment	CAL ICPMS_TW
Data File Name	017CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	28372	1.52
11	B	45	18045	1.28
23	Na	45	7600569	1.79
24	Mg	45	3972974	1.90
27	Al	45	2086534	2.56
39	K	45	4848851	1.99
44	Ca	45	281337	1.12
47	Ti	45	90523	1.39
51	V	45	2721870	1.22
52	Cr	45	3199444	2.52
55	Mn	45	2189891	3.52
56	Fe	45	61185264	0.75
59	Co	72	4850951	0.42
60	Ni	72	1272668	0.85
63	Cu	72	3460315	1.35
66	Zn	72	702168	0.70
75	As	72	546581	0.50
78	Se	72	42721	0.69
88	Sr	115	3367803	1.07
95	Mo	115	2237983	0.66
107	Ag	115	6452178	1.48
111	Cd	115	1084273	1.38
118	Sn	115	2644788	2.51
121	Sb	115	3922868	1.54
137	Ba	115	1262946	0.99
205	Tl	209	15143689	1.08
208	Pb	209	20250594	0.89

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1442194	1.74	1522183	94.75	70	120	
72	Ge	1029673	0.22	1074520	95.83	70	120	
115	In	10942298	0.93	11514007	95.03	70	120	
209	Bi	21669900	0.46	22396997	96.75	70	120	

Calibration Standard Report

Date Acquired	5/29/2014 10:00	Sample Name	Cal07
Data Batch	140529.b	Comment	CAL ICPMS_TW
Data File Name	018CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	112362	1.18
11	B	45	55656	0.74
23	Na	45	18568014	0.51
24	Mg	45	9890104	1.02
27	Al	45	3906	8.38
39	K	45	11911523	1.77
44	Ca	45	741971	0.67
47	Ti	45	344484	1.81
51	V	45	10843120	1.80
52	Cr	45	12637171	1.23
55	Mn	45	8664084	1.13
56	Fe	45	44866	12.24
59	Co	72	18626828	1.12
60	Ni	72	5000914	1.75
63	Cu	72	13681999	2.59
66	Zn	72	2956697	2.73
75	As	72	2279671	1.95
78	Se	72	168944	0.24
88	Sr	115	12512247	0.54
95	Mo	115	8275800	0.89
107	Ag	115	2726	21.67
111	Cd	115	4306825	2.69
118	Sn	115	9719800	1.19
121	Sb	115	2571	13.27
137	Ba	115	5125764	0.48
205	Tl	209	59976200	2.10
208	Pb	209	79360569	0.69

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1474077	2.23	1522183	96.84	70	120	
72	Ge	1029511	1.45	1074520	95.81	70	120	
115	In	10895166	1.04	11514007	94.63	70	120	
209	Bi	21438060	0.33	22396997	95.72	70	120	

Interference Check Solution A (ICS-A) Report

Date Acquired	5/29/2014 10:06	Sample Name	ICSA-140529
Data Batch	140529.b	Comment	ICSAICPMS_TW
Data File Name	021ICSA.d	Dilution	1

Mass	Name	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	0.034	2	24.7	1.2	0.8	
11	B	24.708	3995	1.8	30	30	
51	V	-0.014	1987	4.8	10	10	
52	Cr	0.475	5455	6.8	8	5	
55	Mn	2.311	9472	3.7	8	10	
59	Co	0.635	5836	2.4	8	10	
60	Ni	0.346	2545	2.8	8	10	
63	Cu	0.923	7268	2.0	8	10	
66	Zn	2.330	3578	2.1	10	5	
75	As	0.284	513	7.7	4	5	
78	Se	0.138	96	8.7	2	5	
88	Sr	0.496	2927	5.4	10	10	
107	Ag	0.174	2068	0.5	0.8	2	
111	Cd	0.969	1941	4.2	1.2	1	
118	Sn	0.751	4112	8.3	10	10	
121	Sb	0.695	5201	4.9	4	2.5	
137	Ba	0.388	956	8.6	8	10	
205	Tl	0.089	2984	1.5	4	1.5	
208	Pb	0.607	25928	11.3	1.2	1	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1344831	0.43	1522183	88.35	70	120	
72	Ge	971427	0.82	1074520	90.41	70	120	
115	In	9903414	0.94	11514007	86.01	70	120	
209	Bi	19700401	0.63	22396997	87.96	70	120	

Interference Check Solution AB (ICS-AB) Report

Date Acquired	5/29/2014 10:07	Sample Name	ICSAB-140529
Data Batch	140529.b	Comment	ICSBICPMS_TW
Data File Name	022ICSB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
51	V	45	40.337	197927	0.60	40	100.8	80	120	
52	Cr	45	21.218	122863	0.74	20	106.1	80	120	
55	Mn	45	21.042	81989	1.98	20	105.2	80	120	
59	Co	72	42.222	360933	0.49	40	105.6	80	120	
60	Ni	72	40.799	95084	1.20	40	102.0	80	120	
63	Cu	72	20.018	126692	1.45	20	100.1	80	120	
66	Zn	72	20.941	28530	0.46	20	104.7	80	120	
75	As	72	19.955	20938	0.65	20	99.8	80	120	
78	Se	72	20.540	1669	3.67	20	102.7	80	120	
107	Ag	115	19.355	229375	1.15	20	96.8	80	120	
111	Cd	115	10.759	21227	1.56	10	107.6	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1318873	1.59	1522183	86.64	70	120	
72	Ge	941451	0.41	1074520	87.62	70	120	
115	In	9958392	0.86	11514007	86.49	70	120	
209	Bi	19715514	0.75	22396997	88.03	70	120	

Initial Calibration Verification (ICV) Report

Date Acquired	5/29/2014 10:13	Sample Name	ICV-140529
Data Batch	140529.b	Comment	ICV ICPMS_TW
Data File Name	025_ICV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	98.997	5468	1.28	100	99.0	90	110	
11	B	45	82.607	5780	4.33	100	82.6	90	110	Fail
23	Na	45	2794.398	2105305	3.84	2500	111.8	90	110	Fail
24	Mg	45	2794.767	1090920	0.64	2500	111.8	90	110	Fail
27	Al	45	2425.540	500475	0.74	2500	97.0	90	110	
39	K	45	2854.506	1396455	1.59	2500	114.2	90	110	Fail
44	Ca	45	2641.048	74237	1.24	2500	105.6	90	110	
47	Ti	45	103.016	17512	2.62	100	103.0	90	110	
51	V	45	97.049	519112	0.38	100	97.0	90	110	
52	Cr	45	102.145	637609	0.79	100	102.1	90	110	
55	Mn	45	97.776	416482	1.29	100	97.8	90	110	
56	Fe	45	2422.640	14742435	1.75	2500	96.9	90	110	
59	Co	72	103.165	969040	1.14	100	103.2	90	110	
60	Ni	72	102.450	259674	0.88	100	102.4	90	110	
63	Cu	72	99.801	688750	0.17	100	99.8	90	110	
66	Zn	72	95.298	141428	0.74	100	95.3	90	110	
75	As	72	94.207	107825	0.57	100	94.2	90	110	
78	Se	72	99.472	8539	0.80	100	99.5	90	110	
88	Sr	115	98.995	628893	0.50	100	99.0	90	110	
95	Mo	115	94.979	399011	1.42	100	95.0	90	110	
107	Ag	115	96.482	1262709	1.39	100	96.5	90	110	
111	Cd	115	98.272	213670	0.53	100	98.3	90	110	
118	Sn	115	99.462	491410	1.14	100	99.5	90	110	
121	Sb	115	91.931	727270	0.67	100	91.9	90	110	
137	Ba	115	96.944	250488	0.71	100	96.9	90	110	
205	Tl	209	98.953	3009546	0.48	100	99.0	90	110	
208	Pb	209	99.949	4030218	2.14	100	99.9	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1446276	1.34	1522183	95.01	70	120	
72	Ge	1034875	0.45	1074520	96.31	70	120	
115	In	10998164	1.88	11514007	95.52	70	120	
209	Bi	21747667	1.72	22396997	97.10	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/29/2014 10:17	Sample Name	LCVL-140529
Data Batch	140529.b	Comment	LCVLICPMS_TW
Data File Name	027LICV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.917	54	9.80	1	91.7	70	130	
11	B	45	12.631	4205	1.27	20	63.2	70	130	Fail
23	Na	45	111.841	154538	0.32	100	111.8	70	130	
24	Mg	45	109.535	45898	1.74	100	109.5	70	130	
27	Al	45	88.967	19641	1.70	100	89.0	70	130	
39	K	45	111.326	121385	0.19	100	111.3	70	130	
44	Ca	45	104.565	3363	2.38	100	104.6	70	130	
47	Ti	45	5.017	911	4.60	5	100.3	70	130	
51	V	45	1.032	8135	2.01	1	103.2	70	130	
52	Cr	45	4.941	35459	1.16	5	98.8	70	130	
55	Mn	45	4.652	21260	1.94	5	93.0	70	130	
56	Fe	45	89.906	594757	0.38	100	89.9	70	130	
59	Co	72	5.078	49698	0.56	5	101.6	70	130	
60	Ni	72	5.109	15239	3.47	5	102.2	70	130	
63	Cu	72	5.085	37750	0.81	5	101.7	70	130	
66	Zn	72	4.649	7512	1.68	5	93.0	70	130	
75	As	72	4.662	5752	1.15	5	93.2	70	130	
78	Se	72	5.220	553	7.23	5	104.4	70	130	
88	Sr	115	5.050	32922	1.59	5	101.0	70	130	
95	Mo	115	4.837	20841	1.44	5	96.7	70	130	
107	Ag	115	1.847	24755	1.11	2	92.4	70	130	
111	Cd	115	0.990	2254	1.74	1	99.0	70	130	
118	Sn	115	5.189	27055	2.92	5	103.8	70	130	
121	Sb	115	1.743	14380	1.08	2	87.1	70	130	
137	Ba	115	4.715	12525	2.52	5	94.3	70	130	
205	Tl	209	0.967	30760	1.63	1	96.7	70	130	
208	Pb	209	1.051	47692	1.96	1	105.1	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1526305	2.16	1522183	100.27	70	120	
72	Ge	1072879	0.38	1074520	99.85	70	120	
115	In	11255079	2.86	11514007	97.75	70	120	
209	Bi	22310560	1.05	22396997	99.61	70	120	

Initial Calibration Blank (ICB) Report

Date Acquired	5/29/2014 10:21	Sample Name	ICB-140529
Data Batch	140529.b	Comment	ICB ICPMS_TW
Data File Name	029_ICB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.016	2	173.2	0.4	0.3	
11	B	45	2.899	4072	1.8	10	10	
23	Na	45	-1.132	69722	1.3	50	100	
24	Mg	45	-0.937	436	11.7	50	100	
27	Al	45	-0.311	227	19.2	50	10	
39	K	45	-0.565	68428	0.5	50	100	
44	Ca	45	-3.466	174	5.8	50	100	
47	Ti	45	-0.045	3	0.0	4	3	
51	V	45	0.071	2821	7.6	4	3	
52	Cr	45	-0.004	3148	5.0	2	2	
55	Mn	45	-0.012	326	4.8	2	3	
56	Fe	45	0.013	18782	2.1	50	50	
59	Co	72	-0.004	229	14.7	2	3	
60	Ni	72	-0.078	1745	7.2	2	3	
63	Cu	72	-0.005	1433	2.0	2	2	
66	Zn	72	0.008	398	7.1	4	2	
75	As	72	0.008	247	5.1	2	2	
78	Se	72	-0.004	95	12.3	1	2	
88	Sr	115	-0.002	88	15.8	4	3	
95	Mo	115	0.017	133	22.2	2	2	
107	Ag	115	0.005	96	21.3	0.4	1	
111	Cd	115	0.002	57	56.1	0.4	0.3	
118	Sn	115	0.115	1508	5.3	4	3	
121	Sb	115	-0.007	234	19.9	2	0.8	
137	Ba	115	0.012	96	30.5	2	3	
205	Tl	209	0.001	639	8.6	2	0.5	
208	Pb	209	0.028	5560	3.1	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1576182	0.30	1522183	103.55	70	120	
72	Ge	1096595	1.34	1074520	102.05	70	120	
115	In	11582562	1.93	11514007	100.60	70	120	
209	Bi	22865615	0.47	22396997	102.09	70	120	

Method Blank Report

Date Acquired	5/29/14 10:23 AM	Sample Name	MB-63805
Data Batch	140529.b	Comment	MBLK6020A_S
Data File Name	030_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.010	1	43.30		
11	B	45	-14.947	3692	7.24		
23	Na	45	1.437	74125	0.97		
24	Mg	45	2.875	2122	5.12		
27	Al	45	4.700	1398	2.16		
39	K	45	-2.028	69916	1.67		
44	Ca	45	20.011	921	4.24		
47	Ti	45	0.006	13	49.99		
51	V	45	0.037	2711	5.05		
52	Cr	45	0.025	3451	0.90		
55	Mn	45	0.039	584	5.18		
56	Fe	45	1.952	32657	1.93		
59	Co	72	0.003	300	9.49		
60	Ni	72	-0.019	1915	4.66		
63	Cu	72	0.128	2422	6.21		
66	Zn	72	1.249	2362	2.53		
75	As	72	-0.019	214	10.63		
78	Se	72	0.230	117	11.74		
88	Sr	115	0.050	433	8.67		
95	Mo	115	0.032	198	32.87		
107	Ag	115	0.007	113	16.38		
111	Cd	115	0.002	58	13.33		
118	Sn	115	4.373	23559	2.51		J
121	Sb	115	-0.006	244	12.67		
137	Ba	115	0.059	223	7.90		
205	Tl	209	0.013	1037	4.03		
208	Pb	209	0.153	10834	5.62		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1628840	2.73	1522183	107.01	70	120	
72	Ge	1104870	1.45	1074520	102.82	70	120	
115	In	11550302	0.29	11514007	100.32	70	120	
209	Bi	22908480	2.73	22396997	102.28	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/29/2014 10:25	Sample Name	LCS-63805
Data Batch	140529.b	Comment	LCS 6020A_S
Data File Name	031_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	200.158	11618	1.19	200	200.2	80	120	
11	B	45	189.204	8957	2.13	200	189.2	80	120	
23	Na	45	1055.705	878401	0.46	1000	1055.7	80	120	
24	Mg	45	1053.674	432808	0.53	1000	1053.7	80	120	
27	Al	45	1013.085	219872	1.83	1000	1013.1	80	120	
39	K	45	1043.706	578709	0.59	1000	1043.7	80	120	
44	Ca	45	1445.543	42831	0.80	1000	1445.5	80	120	Fail
47	Ti	45	220.432	39378	1.81	200	220.4	80	120	
51	V	45	200.195	1123058	1.39	200	200.2	80	120	
52	Cr	45	215.800	1412274	1.57	200	215.8	80	120	
55	Mn	45	197.407	883450	1.35	200	197.4	80	120	
56	Fe	45	1031.164	6605785	2.24	1000	1031.2	80	120	
59	Co	72	217.610	2119946	2.68	200	217.6	80	120	
60	Ni	72	212.053	555476	0.82	200	212.1	80	120	
63	Cu	72	208.502	1491027	0.20	200	208.5	80	120	
66	Zn	72	192.809	296426	1.38	200	192.8	80	120	
75	As	72	194.659	230862	0.61	200	194.7	80	120	
78	Se	72	199.753	17692	1.14	200	199.8	80	120	
88	Sr	115	209.712	1389378	1.32	200	209.7	80	120	
95	Mo	115	212.820	932481	1.52	200	212.8	80	120	
107	Ag	115	206.546	2818952	0.51	200	206.5	80	120	
111	Cd	115	198.772	450809	1.22	200	198.8	80	120	
118	Sn	115	214.046	1101950	0.61	200	214.0	80	120	
121	Sb	115	200.088	1650861	2.78	200	200.1	80	120	
137	Ba	115	197.018	530895	0.27	200	197.0	80	120	
205	Tl	209	201.157	6318857	1.67	200	201.2	80	120	
208	Pb	209	203.332	8461346	0.22	200	203.3	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1520489	2.00	1522183	99.89	70	120	
72	Ge	1073471	0.20	1074520	99.90	70	120	
115	In	11472148	2.11	11514007	99.64	70	120	
209	Bi	22457988	1.15	22396997	100.27	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/29/2014 10:27	Sample Name	LCSD-63805
Data Batch	140529.b	Comment	LCSD6020A_S
Data File Name	032_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	197.437	11397	0.48	200	197.4	80	120	
11	B	45	188.523	8887	0.48	200	188.5	80	120	
23	Na	45	1069.886	884417	0.48	1000	1069.9	80	120	
24	Mg	45	1050.437	429123	0.62	1000	1050.4	80	120	
27	Al	45	993.013	214315	1.04	1000	993.0	80	120	
39	K	45	1038.596	572924	0.51	1000	1038.6	80	120	
44	Ca	45	1416.998	41759	1.08	1000	1417.0	80	120	Fail
47	Ti	45	215.415	38267	1.18	200	215.4	80	120	
51	V	45	199.107	1110834	0.04	200	199.1	80	120	
52	Cr	45	208.795	1358919	1.30	200	208.8	80	120	
55	Mn	45	196.228	873289	0.58	200	196.2	80	120	
56	Fe	45	1018.697	6491748	2.10	1000	1018.7	80	120	
59	Co	72	214.549	2075319	2.47	200	214.5	80	120	
60	Ni	72	209.431	544704	0.05	200	209.4	80	120	
63	Cu	72	207.661	1474303	2.65	200	207.7	80	120	
66	Zn	72	191.154	291786	0.75	200	191.2	80	120	
75	As	72	194.376	228878	0.22	200	194.4	80	120	
78	Se	72	200.790	17656	0.61	200	200.8	80	120	
88	Sr	115	214.000	1380912	0.50	200	214.0	80	120	
95	Mo	115	215.805	920820	0.39	200	215.8	80	120	
107	Ag	115	212.816	2829089	2.12	200	212.8	80	120	
111	Cd	115	202.170	446536	0.25	200	202.2	80	120	
118	Sn	115	215.696	1081496	0.83	200	215.7	80	120	
121	Sb	115	204.348	1641898	0.47	200	204.3	80	120	
137	Ba	115	199.333	523132	1.00	200	199.3	80	120	
205	Tl	209	200.662	6263361	1.40	200	200.7	80	120	
208	Pb	209	205.824	8510410	0.99	200	205.8	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1511922	1.80	1522183	99.33	70	120	
72	Ge	1065800	0.39	1074520	99.19	70	120	
115	In	11170680	0.53	11514007	97.02	70	120	
209	Bi	22326122	3.33	22396997	99.68	70	120	

Dilution Sample (Dil) Report

Date Acquired	5/29/2014 10:32	Sample Name	1405109-39A SD
Data Batch	140529.b	Comment	SD 6020A_S
Data File Name	035_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
9	Be	45	0.549	32	17.03	2.4	113.4	110	90	
11	B	45	-25.660	3131	2.95	-17.8	721.2	110	90	
23	Na	45	31.756	91702	1.19	158.1	100.4	110	90	Good
24	Mg	45	903.466	368206	0.92	4466.0	101.1	110	90	Good
27	Al	45	21437.839	4609372	0.60	104170.8	102.9	110	90	Good
39	K	45	795.718	453137	0.42	3976.7	100.0	110	90	Good
44	Ca	45	232.645	7064	2.96	1133.7	102.6	110	90	Good
47	Ti	45	71.163	12578	21.09	264.8	134.4	110	90	
51	V	45	35.432	199054	0.54	174.4	101.6	110	90	Good
52	Cr	45	22.407	148179	0.81	110.3	101.6	110	90	Good
55	Mn	45	21.476	95650	0.71	104.1	103.2	110	90	Good
56	Fe	45	17591.578	111519733	1.36	85217.5	103.2	110	90	Good
59	Co	72	2.979	28188	1.07	14.6	101.8	110	90	Good
60	Ni	72	6.935	19265	1.71	34.5	100.4	110	90	Good
63	Cu	72	3.808	27574	1.61	18.3	103.9	110	90	Good
66	Zn	72	20.305	30378	1.02	97.1	104.5	110	90	Good
75	As	72	4.669	5548	1.42	22.9	101.7	110	90	Good
78	Se	72	1.323	202	12.27	5.3	125.1	110	90	
88	Sr	115	8.855	57296	1.77	44.8	98.9	110	90	Good
95	Mo	115	0.555	2425	3.13	2.7	101.3	110	90	Good
107	Ag	115	0.030	416	4.12	0.1	135.5	110	90	
111	Cd	115	0.007	67	8.66	0.0	94.4	110	90	Good
118	Sn	115	1.292	7354	1.52	6.5	98.8	110	90	Good
121	Sb	115	0.060	762	5.55	0.4	82.7	110	90	
137	Ba	115	44.847	117863	0.25	227.6	98.5	110	90	Good
205	Tl	209	0.226	7759	4.84	1.1	107.1	110	90	Good
208	Pb	209	6.939	295133	0.18	35.6	97.6	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1508050	2.30	1522183	99.07	70	120	
72	Ge	1033435	0.94	1074520	96.18	70	120	
115	In	11182033	0.76	11514007	97.12	70	120	
209	Bi	22628927	0.94	22396997	101.04	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	5/29/2014 10:52	Sample Name	1405109-39A PDS
Data Batch	140529.b	Comment	PDS 6020A_S
Data File Name	045_PDS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	209.732	11608	0.62	2.4	200	103.7	75	125	
11	B	45	176.645	8214	1.56	-17.8	200	97.2	75	125	
23	Na	45	5694.885	4232823	0.59	158.1	5000	110.7	75	125	
24	Mg	45	10212.740	3993199	1.00	4466.0	5000	114.9	75	125	
27	Al	45	########	23042002	0.62	104170.8	5000	146.3	75	125	Fail
39	K	45	9638.105	4574711	1.79	3976.7	5000	113.2	75	125	
44	Ca	45	6662.750	187305	1.32	1133.7	5000	110.6	75	125	
47	Ti	45	488.395	83183	0.22	264.8	200	111.8	75	125	
51	V	45	397.778	2125488	3.00	174.4	200	111.7	75	125	
52	Cr	45	340.254	2121679	1.32	110.3	200	115.0	75	125	
55	Mn	45	308.944	1318007	0.42	104.1	200	102.4	75	125	
56	Fe	45	93033.269	566808351	1.05	85217.5	5000	156.3	75	125	Fail
59	Co	72	246.490	2240978	1.29	14.6	200	115.9	75	125	
60	Ni	72	255.034	623090	0.66	34.5	200	110.2	75	125	
63	Cu	72	236.205	1576163	1.07	18.3	200	108.9	75	125	
66	Zn	72	303.634	435441	0.35	97.1	200	103.3	75	125	
75	As	72	227.858	252152	0.57	22.9	200	102.5	75	125	
78	Se	72	216.518	17889	1.78	5.3	200	105.6	75	125	
88	Sr	115	279.850	1702829	0.71	44.8	200	117.5	75	125	
95	Mo	115	216.954	872841	0.61	2.7	200	107.1	75	125	
107	Ag	115	248.638	3115511	1.42	0.1	200	124.3	75	125	
111	Cd	115	214.388	446427	0.40	0.0	200	107.2	75	125	
118	Sn	115	228.841	1081827	0.66	6.5	200	111.2	75	125	
121	Sb	115	208.266	1576882	3.50	0.4	200	104.0	75	125	
137	Ba	115	452.683	1120026	0.47	227.6	200	112.5	75	125	
205	Tl	209	211.069	6492225	1.11	1.1	200	105.0	75	125	
208	Pb	209	252.319	10282134	1.31	35.6	200	108.4	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1449397	0.68	1522183	95.22	70	120	
72	Ge	1001786	0.14	1074520	93.23	70	120	
115	In	10537262	2.75	11514007	91.52	70	120	
209	Bi	21992889	0.61	22396997	98.20	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/29/2014 10:53	Sample Name	1405109-39A MS
Data Batch	140529.b	Comment	MS 6020A_S
Data File Name	046_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	198.113	10974	0.69	2.4	200	97.8	80	120	
11	B	45	166.853	7965	3.34	-17.8	200	92.3	80	120	
23	Na	45	1197.852	942388	1.02	158.1	1000	104.0	80	120	
24	Mg	45	6073.007	2377328	2.08	4466.0	1000	160.7	80	120	Fail
27	Al	45	########	24919711	1.20	104170.8	1000	1629.5	80	120	Fail
39	K	45	5963.435	2856649	2.30	3976.7	1000	198.7	80	120	Fail
44	Ca	45	2548.987	71848	1.51	1133.7	1000	141.5	80	120	Fail
47	Ti	45	433.465	73885	0.89	264.8	200	84.3	80	120	
51	V	45	378.955	2026580	0.29	174.4	200	102.3	80	120	
52	Cr	45	317.860	1984023	3.68	110.3	200	103.8	80	120	
55	Mn	45	299.394	1278131	0.61	104.1	200	97.6	80	120	
56	Fe	45	83190.996	507215802	0.78	85217.5	1000	-202.7	80	120	Fail
59	Co	72	231.288	2122718	2.77	14.6	200	108.3	80	120	
60	Ni	72	245.695	606043	1.47	34.5	200	105.6	80	120	
63	Cu	72	230.855	1555233	1.42	18.3	200	106.3	80	120	
66	Zn	72	301.848	436977	0.52	97.1	200	102.4	80	120	
75	As	72	203.866	227765	0.17	22.9	200	90.5	80	120	
78	Se	72	195.050	16276	1.73	5.3	200	94.9	80	120	
88	Sr	115	271.372	1657015	0.59	44.8	200	113.3	80	120	
95	Mo	115	200.978	811476	0.79	2.7	200	99.1	80	120	
107	Ag	115	210.011	2641760	0.85	0.1	200	105.0	80	120	
111	Cd	115	204.526	427448	1.23	0.0	200	102.2	80	120	
118	Sn	115	214.412	1017237	0.30	6.5	200	103.9	80	120	
121	Sb	115	56.866	432577	1.14	0.4	200	28.3	80	120	Fail
137	Ba	115	457.887	1137012	0.86	227.6	200	115.2	80	120	
205	Tl	209	198.991	6151026	2.48	1.1	200	99.0	80	120	
208	Pb	209	238.434	9764492	0.95	35.6	200	101.4	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1450905	2.47	1522183	95.32	70	120	
72	Ge	1011342	0.94	1074520	94.12	70	120	
115	In	10570685	0.89	11514007	91.81	70	120	
209	Bi	22101737	0.67	22396997	98.68	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/29/2014 10:55	Sample Name	1405109-39A MSD
Data Batch	140529.b	Comment	MSD 6020A_S
Data File Name	047_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	194.250	11076	1.68	2.4	200	95.9	80	120	
11	B	45	166.706	8201	0.89	-17.8	200	92.2	80	120	
23	Na	45	1168.591	948090	0.49	158.1	1000	101.0	80	120	
24	Mg	45	5842.525	2354467	1.27	4466.0	1000	137.7	80	120	Fail
27	Al	45	########	24459886	1.69	104170.8	1000	1065.9	80	120	Fail
39	K	45	5714.322	2820872	1.27	3976.7	1000	173.8	80	120	Fail
44	Ca	45	2449.844	71138	1.22	1133.7	1000	131.6	80	120	Fail
47	Ti	45	454.194	79710	1.44	264.8	200	94.7	80	120	
51	V	45	382.316	2106074	3.12	174.4	200	104.0	80	120	
52	Cr	45	317.199	2038909	2.03	110.3	200	103.5	80	120	
55	Mn	45	327.730	1440121	2.33	104.1	200	111.8	80	120	
56	Fe	45	83904.862	526688672	1.22	85217.5	1000	-131.3	80	120	Fail
59	Co	72	227.096	2133292	1.20	14.6	200	106.2	80	120	
60	Ni	72	240.980	608474	0.24	34.5	200	103.2	80	120	
63	Cu	72	227.804	1570771	0.88	18.3	200	104.7	80	120	
66	Zn	72	294.813	436890	0.58	97.1	200	98.9	80	120	
75	As	72	204.258	233596	0.39	22.9	200	90.7	80	120	
78	Se	72	197.944	16907	0.21	5.3	200	96.3	80	120	
88	Sr	115	260.794	1670769	3.50	44.8	200	108.0	80	120	
95	Mo	115	197.815	838017	1.14	2.7	200	97.5	80	120	
107	Ag	115	205.496	2711544	1.50	0.1	200	102.7	80	120	
111	Cd	115	198.686	435656	0.12	0.0	200	99.3	80	120	
118	Sn	115	212.796	1059243	1.47	6.5	200	103.1	80	120	
121	Sb	115	57.756	460881	0.43	0.4	200	28.7	80	120	Fail
137	Ba	115	429.767	1119603	0.77	227.6	200	101.1	80	120	
205	Tl	209	200.262	6248315	1.73	1.1	200	99.6	80	120	
208	Pb	209	239.047	9882183	2.04	35.6	200	101.7	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1493900	2.37	1522183	98.14	70	120	
72	Ge	1035260	1.11	1074520	96.35	70	120	
115	In	11091164	1.55	11514007	96.33	70	120	
209	Bi	22309626	1.64	22396997	99.61	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/29/2014 11:05	Sample Name	CCV1-140529
Data Batch	140529.b	Comment	CCV ICPMS_TW
Data File Name	052_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	192.496	10915	0.41	200	96.2	90	110	
11	B	45	181.641	8548	0.82	200	90.8	90	110	
23	Na	45	5064.289	3863285	2.05	5000	101.3	90	110	
24	Mg	45	4913.993	1969037	1.56	5000	98.3	90	110	
27	Al	45	4914.221	1040899	0.85	5000	98.3	90	110	
39	K	45	5055.670	2489368	0.96	5000	101.1	90	110	
44	Ca	45	5285.319	152279	1.17	5000	105.7	90	110	
47	Ti	45	213.936	37338	0.86	200	107.0	90	110	
51	V	45	197.466	1082159	0.68	200	98.7	90	110	
52	Cr	45	202.752	1296587	0.72	200	101.4	90	110	
55	Mn	45	193.997	847967	1.32	200	97.0	90	110	
56	Fe	45	5000.517	31224330	3.39	5000	100.0	90	110	
59	Co	72	214.054	2040267	2.05	200	107.0	90	110	
60	Ni	72	204.861	525066	0.23	200	102.4	90	110	
63	Cu	72	209.136	1463086	1.39	200	104.6	90	110	
66	Zn	72	198.968	299262	0.58	200	99.5	90	110	
75	As	72	192.820	223727	0.50	200	96.4	90	110	
78	Se	72	201.766	17481	1.50	200	100.9	90	110	
88	Sr	115	214.861	1356821	0.20	200	107.4	90	110	
95	Mo	115	216.867	905530	0.45	200	108.4	90	110	
107	Ag	115	210.443	2737426	0.43	200	105.2	90	110	
111	Cd	115	204.989	443131	0.79	200	102.5	90	110	
118	Sn	115	209.716	1028941	0.60	200	104.9	90	110	
121	Sb	115	199.164	1565700	2.01	200	99.6	90	110	
137	Ba	115	199.367	512046	0.27	200	99.7	90	110	
205	Tl	209	200.472	6139985	1.24	200	100.2	90	110	
208	Pb	209	205.375	8333394	0.14	200	102.7	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1484952	0.99	1522183	97.55	70	120	
72	Ge	1050258	0.95	1074520	97.74	70	120	
115	In	10935917	2.50	11514007	94.98	70	120	
209	Bi	21897107	0.39	22396997	97.77	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/29/2014 11:09	Sample Name	LCVL1-140529
Data Batch	140529.b	Comment	LCVLICPMS_TW
Data File Name	054LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.913	51	23.79	1	91.3	70	130	
11	B	45	-32.411	2822	0.45	20	-162.1	70	130	Fail
23	Na	45	128.439	158232	0.55	100	128.4	70	130	
24	Mg	45	109.826	43487	1.88	100	109.8	70	130	
27	Al	45	92.389	19271	2.32	100	92.4	70	130	
39	K	45	116.415	117146	0.61	100	116.4	70	130	
44	Ca	45	110.927	3355	2.39	100	110.9	70	130	
47	Ti	45	5.451	933	10.30	5	109.0	70	130	
51	V	45	0.987	7457	3.62	1	98.7	70	130	
52	Cr	45	5.077	34365	1.97	5	101.5	70	130	
55	Mn	45	4.864	20997	1.54	5	97.3	70	130	
56	Fe	45	93.053	581429	0.34	100	93.1	70	130	
59	Co	72	4.992	48141	0.61	5	99.8	70	130	
60	Ni	72	4.681	13913	1.19	5	93.6	70	130	
63	Cu	72	5.015	36699	1.72	5	100.3	70	130	
66	Zn	72	4.765	7575	3.45	5	95.3	70	130	
75	As	72	4.659	5663	0.67	5	93.2	70	130	
78	Se	72	5.389	560	7.28	5	107.8	70	130	
88	Sr	115	4.928	31732	2.15	5	98.6	70	130	
95	Mo	115	4.754	20231	1.41	5	95.1	70	130	
107	Ag	115	1.871	24755	1.47	2	93.6	70	130	
111	Cd	115	1.029	2314	8.49	1	102.9	70	130	
118	Sn	115	4.942	25493	0.57	5	98.8	70	130	
121	Sb	115	1.727	14082	1.16	2	86.4	70	130	
137	Ba	115	4.663	12236	4.26	5	93.3	70	130	
205	Tl	209	0.974	30608	1.01	1	97.4	70	130	
208	Pb	209	1.045	46854	0.67	1	104.5	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1443714	3.17	1522183	94.84	70	120	
72	Ge	1057001	0.24	1074520	98.37	70	120	
115	In	11112068	1.89	11514007	96.51	70	120	
209	Bi	22043389	1.13	22396997	98.42	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/29/2014 11:11	Sample Name	CCB1-140529
Data Batch	140529.b	Comment	CCB ICPMS_TW
Data File Name	055_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.035	3	94.4	0.4	0.3	
11	B	45	-45.183	2601	3.0	10	10	
23	Na	45	13.285	77472	1.2	50	100	
24	Mg	45	-1.244	291	10.9	50	100	
27	Al	45	0.121	309	12.6	50	10	
39	K	45	3.341	67189	1.4	50	100	
44	Ca	45	-1.095	236	19.8	50	100	
47	Ti	45	-0.013	9	21.6	4	3	
51	V	45	0.011	2360	3.0	4	3	
52	Cr	45	-0.139	2133	7.5	2	2	
55	Mn	45	-0.015	300	5.1	2	3	
56	Fe	45	-0.028	17663	1.4	50	50	
59	Co	72	-0.006	203	9.1	2	3	
60	Ni	72	-0.371	938	7.0	2	3	
63	Cu	72	0.021	1580	9.4	2	2	
66	Zn	72	-0.009	362	3.8	4	2	
75	As	72	-0.025	201	5.7	2	2	
78	Se	72	0.152	107	13.8	1	2	
88	Sr	115	0.005	132	25.3	4	3	
95	Mo	115	0.007	87	29.0	2	2	
107	Ag	115	0.019	280	13.3	0.4	1	
111	Cd	115	0.002	57	27.0	0.4	0.3	
118	Sn	115	0.017	969	5.5	4	3	
121	Sb	115	0.003	310	9.7	2	0.8	
137	Ba	115	0.005	76	31.0	2	3	
205	Tl	209	0.020	1209	3.4	2	0.5	
208	Pb	209	0.049	6258	3.9	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1503893	0.26	1522183	98.80	70	120	
72	Ge	1068595	0.71	1074520	99.45	70	120	
115	In	11290470	0.31	11514007	98.06	70	120	
209	Bi	22269404	1.09	22396997	99.43	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/29/2014 11:59	Sample Name	CCV3-140529
Data Batch	140529.b	Comment	CCV ICPMS_TW
Data File Name	080_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	189.283	10942	1.03	200	94.6	90	110	
11	B	45	186.134	8832	3.24	200	93.1	90	110	
23	Na	45	4790.288	3729042	1.20	5000	95.8	90	110	
24	Mg	45	4969.053	2029630	0.80	5000	99.4	90	110	
27	Al	45	4935.841	1065729	0.59	5000	98.7	90	110	
39	K	45	4943.216	2482393	1.54	5000	98.9	90	110	
44	Ca	45	5223.831	153421	0.20	5000	104.5	90	110	
47	Ti	45	206.969	36823	2.86	200	103.5	90	110	
51	V	45	192.120	1073390	0.25	200	96.1	90	110	
52	Cr	45	196.176	1278983	1.05	200	98.1	90	110	
55	Mn	45	189.168	842970	0.75	200	94.6	90	110	
56	Fe	45	4827.690	30740231	2.26	5000	96.6	90	110	
59	Co	72	211.164	2007564	1.81	200	105.6	90	110	
60	Ni	72	202.618	518011	0.73	200	101.3	90	110	
63	Cu	72	200.943	1402368	0.53	200	100.5	90	110	
66	Zn	72	196.390	294648	0.40	200	98.2	90	110	
75	As	72	191.348	221461	0.69	200	95.7	90	110	
78	Se	72	202.738	17521	1.17	200	101.4	90	110	
88	Sr	115	213.507	1347580	0.48	200	106.8	90	110	
95	Mo	115	213.038	889087	0.40	200	106.5	90	110	
107	Ag	115	206.786	2688543	0.77	200	103.4	90	110	
111	Cd	115	199.645	431367	1.42	200	99.8	90	110	
118	Sn	115	208.690	1023395	0.72	200	104.3	90	110	
121	Sb	115	194.600	1529329	0.79	200	97.3	90	110	
137	Ba	115	199.747	512753	1.38	200	99.9	90	110	
205	Tl	209	197.438	6015591	1.15	200	98.7	90	110	
208	Pb	209	203.232	8203699	0.15	200	101.6	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1513738	0.99	1522183	99.45	70	120	
72	Ge	1047609	0.82	1074520	97.50	70	120	
115	In	10928037	1.63	11514007	94.91	70	120	
209	Bi	21783313	0.34	22396997	97.26	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/29/2014 12:02	Sample Name	LCVL3-140529
Data Batch	140529.b	Comment	LCVLICPMS_TW
Data File Name	082LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	1.081	62	18.60	1	108.1	70	130	
11	B	45	-33.879	2866	4.48	20	-169.4	70	130	Fail
23	Na	45	97.846	139877	0.13	100	97.8	70	130	
24	Mg	45	105.438	43011	1.12	100	105.4	70	130	
27	Al	45	94.209	20229	1.92	100	94.2	70	130	
39	K	45	105.617	115367	0.77	100	105.6	70	130	
44	Ca	45	106.841	3337	4.60	100	106.8	70	130	
47	Ti	45	4.750	840	5.56	5	95.0	70	130	
51	V	45	0.975	7604	1.49	1	97.5	70	130	
52	Cr	45	4.734	33193	1.07	5	94.7	70	130	
55	Mn	45	4.570	20326	1.09	5	91.4	70	130	
56	Fe	45	87.113	561304	0.23	100	87.1	70	130	
59	Co	72	4.886	46712	1.40	5	97.7	70	130	
60	Ni	72	4.756	13986	6.04	5	95.1	70	130	
63	Cu	72	4.898	35560	0.08	5	98.0	70	130	
66	Zn	72	4.559	7202	1.21	5	91.2	70	130	
75	As	72	4.468	5394	1.68	5	89.4	70	130	
78	Se	72	5.032	524	3.67	5	100.6	70	130	
88	Sr	115	4.848	30880	1.02	5	97.0	70	130	
95	Mo	115	4.740	19958	0.85	5	94.8	70	130	
107	Ag	115	1.819	23810	0.97	2	90.9	70	130	
111	Cd	115	0.994	2211	4.86	1	99.4	70	130	
118	Sn	115	4.893	24990	1.53	5	97.9	70	130	
121	Sb	115	1.762	14211	0.97	2	88.1	70	130	
137	Ba	115	4.759	12350	1.02	5	95.2	70	130	
205	Tl	209	0.955	29654	1.17	1	95.5	70	130	
208	Pb	209	0.992	44158	1.02	1	99.2	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1484880	1.38	1522183	97.55	70	120	
72	Ge	1047851	0.22	1074520	97.52	70	120	
115	In	10994381	1.22	11514007	95.49	70	120	
209	Bi	21766930	0.67	22396997	97.19	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/29/2014 12:04	Sample Name	CCB3-140529
Data Batch	140529.b	Comment	CCB ICPMS_TW
Data File Name	083_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.001	1	86.6	0.4	0.3	
11	B	45	-59.989	2139	1.3	10	10	
23	Na	45	-6.070	60855	1.1	50	100	
24	Mg	45	-1.485	188	11.4	50	100	
27	Al	45	-0.365	198	21.1	50	10	
39	K	45	3.237	65093	0.5	50	100	
44	Ca	45	2.177	321	22.0	50	100	
47	Ti	45	-0.003	10	88.2	4	3	
51	V	45	0.033	2414	7.6	4	3	
52	Cr	45	-0.150	2001	7.4	2	2	
55	Mn	45	-0.017	282	4.8	2	3	
56	Fe	45	-0.701	12993	0.8	50	50	
59	Co	72	-0.008	183	22.8	2	3	
60	Ni	72	-0.399	849	8.9	2	3	
63	Cu	72	-0.046	1082	6.3	2	2	
66	Zn	72	-0.047	298	11.9	4	2	
75	As	72	-0.027	195	5.8	2	2	
78	Se	72	0.259	114	10.3	1	2	
88	Sr	115	0.011	168	11.3	4	3	
95	Mo	115	0.006	78	22.0	2	2	
107	Ag	115	0.013	188	3.7	0.4	1	
111	Cd	115	-0.002	44	17.3	0.4	0.3	
118	Sn	115	-0.025	734	14.4	4	3	
121	Sb	115	0.019	430	4.0	2	0.8	
137	Ba	115	0.019	108	21.7	2	3	
205	Tl	209	0.016	1034	7.7	2	0.5	
208	Pb	209	0.023	4995	2.5	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1459478	3.52	1522183	95.88	70	120	
72	Ge	1047925	0.53	1074520	97.52	70	120	
115	In	10968365	0.19	11514007	95.26	70	120	
209	Bi	21356615	1.34	22396997	95.35	70	120	

Method Blank Report

Date Acquired	5/29/14 12:06 PM	Sample Name	MB-63830
Data Batch	140529.b	Comment	MBLK6020A_W
Data File Name	084_LRB.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.030	2	24.74		
11	B	45	-68.620	1960	1.96		
23	Na	45	-3.186	64452	1.24		
24	Mg	45	1.110	1237	12.14		
27	Al	45	2.505	813	12.44		
39	K	45	1.756	65899	1.05		
44	Ca	45	5.818	433	5.38		
47	Ti	45	0.001	11	86.60		
51	V	45	0.051	2566	2.75		
52	Cr	45	-0.150	2042	2.32		
55	Mn	45	-0.011	316	13.04		
56	Fe	45	-0.424	15037	2.61		
59	Co	72	-0.011	149	12.33		
60	Ni	72	-0.402	847	11.16		
63	Cu	72	0.042	1708	1.66		
66	Zn	72	0.375	938	9.93		
75	As	72	-0.035	187	4.01		
78	Se	72	0.347	122	8.80		
88	Sr	115	0.023	246	10.89		
95	Mo	115	0.000	56	24.98		
107	Ag	115	0.010	161	4.31		
111	Cd	115	-0.011	26	45.82		
118	Sn	115	-0.029	732	9.57		
121	Sb	115	0.014	396	9.32		
137	Ba	115	0.016	102	6.79		
205	Tl	209	0.008	836	10.28		
208	Pb	209	0.015	4810	1.27		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1492144	0.95	1522183	98.03	70	120	
72	Ge	1055717	0.37	1074520	98.25	70	120	
115	In	11190499	0.61	11514007	97.19	70	120	
209	Bi	21950925	0.42	22396997	98.01	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/29/2014 12:08	Sample Name	LCS-63830
Data Batch	140529.b	Comment	LCS 6020A_W
Data File Name	085_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	187.916	10401	1.00	200	187.9	80	120	
11	B	45	139.376	7258	3.53	200	139.4	80	120	
23	Na	45	5010.263	3732701	0.61	5000	5010.3	80	120	
24	Mg	45	4965.319	1942395	0.82	5000	4965.3	80	120	
27	Al	45	4817.841	996369	1.24	5000	4817.8	80	120	
39	K	45	5119.528	2460748	1.79	5000	5119.5	80	120	
44	Ca	45	4833.279	135949	0.25	5000	4833.3	80	120	
47	Ti	45	206.204	35127	0.78	200	206.2	80	120	
51	V	45	190.550	1019363	0.75	200	190.6	80	120	
52	Cr	45	196.110	1224398	0.39	200	196.1	80	120	
55	Mn	45	187.416	799776	0.67	200	187.4	80	120	
56	Fe	45	4845.508	29540637	0.45	5000	4845.5	80	120	
59	Co	72	206.361	1904362	1.84	200	206.4	80	120	
60	Ni	72	197.230	489502	0.17	200	197.2	80	120	
63	Cu	72	196.539	1331368	0.53	200	196.5	80	120	
66	Zn	72	186.648	271824	0.31	200	186.6	80	120	
75	As	72	186.890	209959	0.30	200	186.9	80	120	
78	Se	72	195.310	16387	1.74	200	195.3	80	120	
88	Sr	115	209.087	1270338	0.70	200	209.1	80	120	
95	Mo	115	209.887	843254	0.63	200	209.9	80	120	
107	Ag	115	205.429	2571502	1.33	200	205.4	80	120	
111	Cd	115	198.195	412185	0.16	200	198.2	80	120	
118	Sn	115	203.256	959635	0.55	200	203.3	80	120	
121	Sb	115	192.577	1456960	0.55	200	192.6	80	120	
137	Ba	115	194.123	479730	0.77	200	194.1	80	120	
205	Tl	209	191.031	5686966	0.97	200	191.0	80	120	
208	Pb	209	196.163	7736989	0.45	200	196.2	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1450504	3.17	1522183	95.29	70	120	
72	Ge	1016820	0.27	1074520	94.63	70	120	
115	In	10518602	1.05	11514007	91.35	70	120	
209	Bi	21288079	1.69	22396997	95.05	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/29/2014 12:10	Sample Name	LCSD-63830
Data Batch	140529.b	Comment	LCSD6020A_W
Data File Name	086_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	189.107	10344	1.45	200	189.1	80	120	
11	B	45	132.944	7004	3.41	200	132.9	80	120	
23	Na	45	4952.205	3645582	2.09	5000	4952.2	80	120	
24	Mg	45	4936.443	1907422	2.91	5000	4936.4	80	120	
27	Al	45	4818.058	984124	0.41	5000	4818.1	80	120	
39	K	45	5210.831	2472158	1.14	5000	5210.8	80	120	
44	Ca	45	4794.672	133260	1.06	5000	4794.7	80	120	
47	Ti	45	208.918	35159	1.61	200	208.9	80	120	
51	V	45	189.584	1002161	0.51	200	189.6	80	120	
52	Cr	45	195.358	1204866	0.30	200	195.4	80	120	
55	Mn	45	190.656	803828	0.60	200	190.7	80	120	
56	Fe	45	4902.291	29529409	0.55	5000	4902.3	80	120	
59	Co	72	209.021	1911804	3.51	200	209.0	80	120	
60	Ni	72	198.036	487109	0.09	200	198.0	80	120	
63	Cu	72	197.511	1325992	0.42	200	197.5	80	120	
66	Zn	72	187.420	270503	0.64	200	187.4	80	120	
75	As	72	187.524	208791	0.19	200	187.5	80	120	
78	Se	72	195.383	16246	1.02	200	195.4	80	120	
88	Sr	115	208.705	1259806	1.04	200	208.7	80	120	
95	Mo	115	209.775	837276	1.20	200	209.8	80	120	
107	Ag	115	207.365	2578685	2.66	200	207.4	80	120	
111	Cd	115	196.556	406107	0.38	200	196.6	80	120	
118	Sn	115	207.019	970974	1.01	200	207.0	80	120	
121	Sb	115	195.597	1470132	0.58	200	195.6	80	120	
137	Ba	115	195.300	479470	0.24	200	195.3	80	120	
205	Tl	209	195.094	5774175	2.62	200	195.1	80	120	
208	Pb	209	195.270	7656603	0.51	200	195.3	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1432609	2.51	1522183	94.12	70	120	
72	Ge	1007777	0.78	1074520	93.79	70	120	
115	In	10449278	0.30	11514007	90.75	70	120	
209	Bi	21159520	0.81	22396997	94.47	70	120	

Sample Report

Date Acquired	5/29/14 12:14 PM	Sample Name	1405261-03A
Data Batch	140529.b	Comment	SAMP6020A_W
Data File Name	088_ARF.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.013	1	86.60	2000	
11	B	45	-20.426	3108	1.56	2000	
23	Na	45	4721.880	3481114	3.40	25000	>RL
24	Mg	45	5220.297	2018264	1.73	25000	>RL
27	Al	45	16.468	3635	5.53	10000	
39	K	45	2014.133	994559	1.06	25000	>RL
44	Ca	45	111858.824	3104448	0.18	10000	OUTCAL
47	Ti	45	0.129	32	41.80	2000	
51	V	45	1.086	7924	1.17	2000	
52	Cr	45	0.294	4694	0.50	2000	
55	Mn	45	43.671	184474	0.82	2000	>RL
56	Fe	45	14.481	104212	0.31	10000	
59	Co	72	0.295	2985	7.51	2000	
60	Ni	72	0.130	2145	4.27	2000	
63	Cu	72	1.605	12307	2.21	2000	
66	Zn	72	1.145	2036	7.59	2000	
75	As	72	5.955	6947	1.43	2000	>RL
78	Se	72	0.427	125	16.90	2000	
88	Sr	115	203.126	1261438	0.25	2000	>RL
95	Mo	115	11.110	45672	0.83	2000	>RL
107	Ag	115	0.028	373	12.27	500	
111	Cd	115	0.020	92	31.58	2000	
118	Sn	115	0.012	901	5.81	2000	
121	Sb	115	309.328	2391677	1.81	500	>RL
137	Ba	115	60.883	153813	0.46	2000	>RL
205	Tl	209	0.049	1987	7.87	2000	
208	Pb	209	0.116	8450	1.22	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1432824	0.96	1522183	94.13	70	120	
72	Ge	1023447	0.31	1074520	95.25	70	120	
115	In	10750121	0.25	11514007	93.37	70	120	
209	Bi	20807160	0.71	22396997	92.90	70	120	

Dilution Sample (Dil) Report

Date Acquired	5/29/2014 12:16	Sample Name	1405261-03A SD
Data Batch	140529.b	Comment	SD 6020A_W
Data File Name	089_SD.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
9	Be	45	0.024	2	100.00	0.0	914.9	110	90	
11	B	45	-58.925	2208	0.49	-20.4	1442.4	110	90	
23	Na	45	950.879	780151	0.35	4721.9	100.7	110	90	Good
24	Mg	45	1045.701	419958	0.65	5220.3	100.2	110	90	Good
27	Al	45	3.364	992	10.66	16.5	102.1	110	90	Good
39	K	45	401.916	257705	0.26	2014.1	99.8	110	90	Good
44	Ca	45	21227.079	611282	0.61	111858.8	94.9	110	90	Good
47	Ti	45	-0.018	8	107.84	0.1	-71.3	110	90	
51	V	45	0.244	3612	3.66	1.1	112.5	110	90	
52	Cr	45	-0.058	2624	1.80	0.3	-98.4	110	90	
55	Mn	45	8.604	37988	1.16	43.7	98.5	110	90	Good
56	Fe	45	2.424	32769	1.74	14.5	83.7	110	90	
59	Co	72	0.061	848	2.24	0.3	104.1	110	90	Good
60	Ni	72	-0.302	1106	7.07	0.1	#####	110	90	
63	Cu	72	0.265	3286	3.96	1.6	82.5	110	90	
66	Zn	72	0.188	657	2.83	1.1	82.1	110	90	
75	As	72	1.131	1551	2.15	6.0	95.0	110	90	Good
78	Se	72	0.341	122	14.95	0.4	398.7	110	90	
88	Sr	115	40.877	260893	0.62	203.1	100.6	110	90	Good
95	Mo	115	2.273	9643	5.68	11.1	102.3	110	90	Good
107	Ag	115	0.026	361	6.15	0.0	469.2	110	90	
111	Cd	115	0.000	51	33.46	0.0	11.3	110	90	
118	Sn	115	-0.036	689	3.91	0.0	#####	110	90	
121	Sb	115	58.363	463860	0.96	309.3	94.3	110	90	Good
137	Ba	115	12.458	32388	1.63	60.9	102.3	110	90	Good
205	Tl	209	0.026	1369	6.65	0.0	264.2	110	90	
208	Pb	209	0.036	5599	7.24	0.1	155.3	110	90	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1486151	0.53	1522183	97.63	70	120	
72	Ge	1059123	1.20	1074520	98.57	70	120	
115	In	11045348	0.98	11514007	95.93	70	120	
209	Bi	21716351	0.74	22396997	96.96	70	120	

Sample Report

Date Acquired	5/29/14 12:24 PM	Sample Name	1405261-01A
Data Batch	140529.b	Comment	SAMP6020A_W
Data File Name	093_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	-0.011	0	#DIV/0!	2000	
11	B	45	88.238	5962	3.36	2000	>RL
23	Na	45	43299.777	31868701	1.79	25000	OUTCAL
24	Mg	45	6277.139	2463290	1.65	25000	>RL
27	Al	45	41.129	8807	4.26	10000	>RL
39	K	45	1506.807	771293	0.09	25000	>RL
44	Ca	45	122636.026	3454805	2.19	10000	OUTCAL
47	Ti	45	0.497	96	20.14	2000	
51	V	45	1.940	12616	1.18	2000	
52	Cr	45	-0.074	2465	3.45	2000	
55	Mn	45	10.351	44665	1.39	2000	>RL
56	Fe	45	33.822	224057	1.51	10000	
59	Co	72	0.209	2218	2.26	2000	
60	Ni	72	0.502	3111	4.03	2000	
63	Cu	72	0.808	6976	7.04	2000	
66	Zn	72	0.770	1507	5.29	2000	
75	As	72	0.914	1270	3.96	2000	
78	Se	72	10.304	968	8.46	2000	>RL
88	Sr	115	593.709	3663185	0.53	2000	>RL
95	Mo	115	0.902	3735	3.33	2000	
107	Ag	115	0.017	241	23.56	500	
111	Cd	115	0.016	82	6.19	2000	
118	Sn	115	-0.042	638	6.24	2000	
121	Sb	115	2.177	16995	1.85	500	J
137	Ba	115	123.133	309063	0.68	2000	>RL
205	Tl	209	0.008	811	8.63	2000	
208	Pb	209	0.312	16169	0.69	2000	J

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1454651	1.02	1522183	95.56	70	120	
72	Ge	1037459	1.54	1074520	96.55	70	120	
115	In	10684032	1.75	11514007	92.79	70	120	
209	Bi	21050054	0.94	22396997	93.99	70	120	

Sample Report

Date Acquired	5/29/14 12:25 PM	Sample Name	1405261-02A
Data Batch	140529.b	Comment	SAMP6020A_W
Data File Name	094_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.025	2	100.00	2000	
11	B	45	163.324	7696	2.10	2000	>RL
23	Na	45	57268.031	41034539	2.62	25000	OUTCAL
24	Mg	45	10054.123	3841566	1.21	25000	>RL
27	Al	45	3.128	898	6.67	10000	
39	K	45	4780.141	2249059	2.42	25000	>RL
44	Ca	45	157981.073	4335003	0.83	10000	OUTCAL
47	Ti	45	0.017	13	25.01	2000	
51	V	45	0.194	3177	1.57	2000	
52	Cr	45	-0.022	2719	3.08	2000	
55	Mn	45	923.979	3851632	0.69	2000	>RL
56	Fe	45	451.777	2706428	1.54	10000	>RL
59	Co	72	1.209	11559	2.28	2000	
60	Ni	72	1.195	4830	3.09	2000	
63	Cu	72	0.303	3459	6.91	2000	
66	Zn	72	1.692	2858	2.20	2000	
75	As	72	9.011	10475	1.49	2000	>RL
78	Se	72	0.277	113	9.33	2000	
88	Sr	115	444.470	2785119	0.52	2000	>RL
95	Mo	115	11.935	49503	0.71	2000	>RL
107	Ag	115	0.031	417	23.89	500	
111	Cd	115	0.003	56	22.71	2000	
118	Sn	115	-0.035	679	8.65	2000	
121	Sb	115	0.875	7098	1.88	500	J
137	Ba	115	168.281	428876	0.65	2000	>RL
205	Tl	209	0.006	717	7.69	2000	
208	Pb	209	0.022	4775	1.09	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1417067	2.36	1522183	93.09	70	120	
72	Ge	1030923	0.16	1074520	95.94	70	120	
115	In	10849208	1.71	11514007	94.23	70	120	
209	Bi	20682356	1.97	22396997	92.34	70	120	

Sample Report

Date Acquired	5/29/14 12:27 PM	Sample Name	1405261-04A
Data Batch	140529.b	Comment	SAMP6020A_W
Data File Name	095_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.013	1	114.56	2000	
11	B	45	277.515	10481	1.79	2000	>RL
23	Na	45	107170.207	76091055	1.35	25000	OUTCAL
24	Mg	45	10873.886	4120413	2.18	25000	>RL
27	Al	45	26.519	5579	8.98	10000	J
39	K	45	4267.191	1997357	1.41	25000	>RL
44	Ca	45	113085.733	3077454	1.01	10000	OUTCAL
47	Ti	45	0.439	83	36.01	2000	
51	V	45	2.689	16064	0.53	2000	
52	Cr	45	-0.053	2510	8.38	2000	
55	Mn	45	11.655	48520	1.00	2000	>RL
56	Fe	45	15.736	109613	1.42	10000	
59	Co	72	0.183	1915	7.14	2000	
60	Ni	72	1.377	5148	1.99	2000	
63	Cu	72	4.180	29270	1.47	2000	J
66	Zn	72	5.693	8528	1.06	2000	>RL
75	As	72	5.990	6852	1.64	2000	>RL
78	Se	72	151.792	12594	0.56	2000	>RL
88	Sr	115	437.759	2640736	1.40	2000	>RL
95	Mo	115	74.133	295713	1.13	2000	>RL
107	Ag	115	0.025	337	16.89	500	
111	Cd	115	0.033	117	14.85	2000	
118	Sn	115	-0.021	721	5.36	2000	
121	Sb	115	2246.395	16869173	0.99	500	OUTCAL
137	Ba	115	58.976	144740	0.46	2000	>RL
205	Tl	209	0.021	1160	4.99	2000	
208	Pb	209	0.159	10087	1.25	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1405314	2.04	1522183	92.32	70	120	
72	Ge	1003877	0.39	1074520	93.43	70	120	
115	In	10444385	1.61	11514007	90.71	70	120	
209	Bi	20762406	1.24	22396997	92.70	70	120	

Sample Report

Date Acquired	5/29/14 12:29 PM	Sample Name	1405261-05A
Data Batch	140529.b	Comment	SAMP6020A_W
Data File Name	096_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.007	1	0.00	2000	
11	B	45	72.602	5464	2.82	2000	>RL
23	Na	45	180861.410	130652004	2.12	25000	OUTCAL
24	Mg	45	19588.007	7555764	0.46	25000	>RL
27	Al	45	19.747	4295	9.08	10000	J
39	K	45	5845.811	2762359	2.08	25000	>RL
44	Ca	45	104929.368	2906528	1.33	10000	OUTCAL
47	Ti	45	0.454	87	19.98	2000	
51	V	45	3.843	22428	1.58	2000	J
52	Cr	45	0.071	3317	3.07	2000	
55	Mn	45	1.253	5618	3.01	2000	
56	Fe	45	6.386	55343	0.89	10000	
59	Co	72	2.780	25397	2.84	2000	
60	Ni	72	19.225	48393	0.27	2000	>RL
63	Cu	72	34.688	231538	0.45	2000	>RL
66	Zn	72	103.123	147436	0.62	2000	>RL
75	As	72	94.348	104054	0.39	2000	>RL
78	Se	72	39.923	3355	4.07	2000	>RL
88	Sr	115	511.375	3010653	1.16	2000	>RL
95	Mo	115	119.596	465595	0.78	2000	>RL
107	Ag	115	0.030	388	9.11	500	
111	Cd	115	0.149	347	14.23	2000	
118	Sn	115	-0.017	720	3.50	2000	
121	Sb	115	1052.693	7716090	0.53	500	OUTCAL
137	Ba	115	101.912	244051	0.17	2000	>RL
205	Tl	209	0.106	3517	2.71	2000	
208	Pb	209	0.506	22763	0.56	2000	J

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1429976	1.02	1522183	93.94	70	120	
72	Ge	997211	0.82	1074520	92.81	70	120	
115	In	10191681	0.50	11514007	88.52	70	120	
209	Bi	20174529	1.04	22396997	90.08	70	120	

Sample Report

Date Acquired	5/29/14 12:31 PM	Sample Name	1405261-06A
Data Batch	140529.b	Comment	SAMP6020A_W
Data File Name	097_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.007	1	100.00	2000	
11	B	45	497.156	16070	0.95	2000	>RL
23	Na	45	44762.608	32048349	1.52	25000	OUTCAL
24	Mg	45	12063.844	4605912	1.09	25000	>RL
27	Al	45	19.802	4264	2.97	10000	J
39	K	45	2892.384	1383528	2.30	25000	>RL
44	Ca	45	145863.270	3997941	0.90	10000	OUTCAL
47	Ti	45	0.197	43	23.08	2000	
51	V	45	0.846	6577	3.91	2000	
52	Cr	45	-0.133	2043	4.90	2000	
55	Mn	45	2.736	11739	0.75	2000	
56	Fe	45	17.167	118896	0.33	10000	
59	Co	72	0.012	361	4.36	2000	
60	Ni	72	-0.181	1353	5.44	2000	
63	Cu	72	0.329	3567	2.42	2000	
66	Zn	72	8.745	13001	0.55	2000	>RL
75	As	72	1.030	1367	1.17	2000	
78	Se	72	0.917	164	8.95	2000	
88	Sr	115	1246.371	7646452	1.44	2000	>RL
95	Mo	115	0.880	3620	4.13	2000	
107	Ag	115	0.024	318	11.79	500	
111	Cd	115	0.009	68	15.02	2000	
118	Sn	115	0.209	1827	8.85	2000	
121	Sb	115	0.798	6365	0.89	500	
137	Ba	115	47.719	119118	0.61	2000	>RL
205	Tl	209	0.011	868	6.77	2000	
208	Pb	209	0.070	6671	2.99	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1415638	2.65	1522183	93.00	70	120	
72	Ge	1011004	1.05	1074520	94.09	70	120	
115	In	10620642	0.23	11514007	92.24	70	120	
209	Bi	20820856	0.66	22396997	92.96	70	120	

Sample Report

Date Acquired	5/29/14 12:33 PM	Sample Name	1405261-07A
Data Batch	140529.b	Comment	SAMP6020A_W
Data File Name	098_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.158	9	58.79	2000	
11	B	45	196.235	8322	2.95	2000	>RL
23	Na	45	30806.264	21589903	0.86	25000	OUTCAL
24	Mg	45	7160.730	2673244	1.70	25000	>RL
27	Al	45	1253.617	247649	1.82	10000	>RL
39	K	45	1572.587	763086	1.70	25000	>RL
44	Ca	45	273193.651	7322606	0.89	10000	OUTCAL
47	Ti	45	25.892	4220	5.53	2000	>RL
51	V	45	7.061	38107	0.82	2000	J
52	Cr	45	2.021	14805	0.99	2000	J
55	Mn	45	193.287	787437	0.19	2000	>RL
56	Fe	45	1027.478	5993193	0.18	10000	>RL
59	Co	72	2.022	18339	1.46	2000	
60	Ni	72	1.763	5982	3.79	2000	
63	Cu	72	5.964	40469	0.13	2000	J
66	Zn	72	10.778	15551	0.94	2000	>RL
75	As	72	2.046	2440	2.28	2000	J
78	Se	72	20.167	1718	2.63	2000	>RL
88	Sr	115	762.935	4578232	2.21	2000	>RL
95	Mo	115	0.433	1769	3.98	2000	
107	Ag	115	0.067	853	1.79	500	
111	Cd	115	0.324	713	2.92	2000	J
118	Sn	115	0.413	2738	3.61	2000	
121	Sb	115	1.510	11537	2.73	500	J
137	Ba	115	86.865	212010	0.93	2000	>RL
205	Tl	209	0.028	1327	3.95	2000	
208	Pb	209	5.857	220186	0.63	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1384003	1.55	1522183	90.92	70	120	
72	Ge	986218	0.37	1074520	91.78	70	120	
115	In	10390625	2.29	11514007	90.24	70	120	
209	Bi	19946478	0.48	22396997	89.06	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	5/29/2014 12:35	Sample Name	1405261-03A PDS
Data Batch	140529.b	Comment	PDS 6020A_W
Data File Name	099_PDS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	197.453	10578	0.73	0.0	200	98.7	75	125	
11	B	45	177.071	7965	2.32	-20.4	200	98.7	75	125	
23	Na	45	9685.365	6923763	1.85	4721.9	5000	99.3	75	125	
24	Mg	45	9873.445	3737376	2.25	5220.3	5000	93.1	75	125	
27	Al	45	4682.563	937062	0.42	16.5	5000	93.3	75	125	
39	K	45	7326.897	3380920	1.44	2014.1	5000	106.3	75	125	
44	Ca	45	########	2909743	1.16	111858.8	5000	-96.0	75	125	Fail
47	Ti	45	204.284	33677	1.51	0.1	200	102.1	75	125	
51	V	45	197.188	1020852	0.73	1.1	200	98.1	75	125	
52	Cr	45	201.637	1218179	0.52	0.3	200	100.7	75	125	
55	Mn	45	234.920	969934	0.85	43.7	200	95.6	75	125	
56	Fe	45	4603.901	27159871	0.95	14.5	5000	91.8	75	125	
59	Co	72	207.773	1867080	1.22	0.3	200	103.7	75	125	
60	Ni	72	198.830	480516	0.29	0.1	200	99.4	75	125	
63	Cu	72	194.782	1284903	0.13	1.6	200	96.6	75	125	
66	Zn	72	185.833	263539	0.48	1.1	200	92.3	75	125	
75	As	72	197.665	216229	0.32	6.0	200	95.9	75	125	
78	Se	72	198.263	16199	1.10	0.4	200	98.9	75	125	
88	Sr	115	415.426	2492201	2.21	203.1	200	106.1	75	125	
95	Mo	115	209.539	831227	0.11	11.1	200	99.2	75	125	
107	Ag	115	194.495	2404034	1.36	0.0	200	97.2	75	125	
111	Cd	115	199.653	410007	0.74	0.0	200	99.8	75	125	
118	Sn	115	207.032	965146	0.85	0.0	200	103.5	75	125	
121	Sb	115	480.285	3586830	1.74	309.3	200	85.5	75	125	
137	Ba	115	256.835	626627	0.58	60.9	200	98.0	75	125	
205	Tl	209	199.848	5814704	1.42	0.0	200	99.9	75	125	
208	Pb	209	205.884	7935842	0.08	0.1	200	102.9	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1403920	3.47	1522183	92.23	70	120	
72	Ge	990185	0.68	1074520	92.15	70	120	
115	In	10386863	1.49	11514007	90.21	70	120	
209	Bi	20802730	1.18	22396997	92.88	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/29/2014 12:37	Sample Name	1405261-03A MS
Data Batch	140529.b	Comment	MS 6020A_W
Data File Name	100_MSS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	191.181	9988	1.60	0.0	200	95.6	80	120	
11	B	45	194.515	8192	2.75	-20.4	200	107.5	80	120	
23	Na	45	9522.798	6640522	0.76	4721.9	1000	480.1	80	120	Fail
24	Mg	45	10019.300	3699603	2.51	5220.3	1000	479.9	80	120	Fail
27	Al	45	4866.298	949769	0.69	16.5	1000	485.0	80	120	Fail
39	K	45	7081.917	3189047	1.95	2014.1	1000	506.8	80	120	Fail
44	Ca	45	########	2943452	1.23	111858.8	1000	-81.1	80	120	Fail
47	Ti	45	212.381	34160	1.77	0.1	200	106.1	80	120	
51	V	45	198.740	1003548	0.39	1.1	200	98.8	80	120	
52	Cr	45	198.092	1167089	0.85	0.3	200	98.9	80	120	
55	Mn	45	232.930	938190	1.31	43.7	200	94.6	80	120	
56	Fe	45	4976.942	28641287	0.39	14.5	1000	496.2	80	120	Fail
59	Co	72	202.955	1817314	1.59	0.3	200	101.3	80	120	
60	Ni	72	192.246	463019	0.31	0.1	200	96.1	80	120	
63	Cu	72	190.567	1252660	0.07	1.6	200	94.5	80	120	
66	Zn	72	182.824	258359	0.53	1.1	200	90.8	80	120	
75	As	72	194.014	211492	0.80	6.0	200	94.0	80	120	
78	Se	72	195.671	15931	0.77	0.4	200	97.6	80	120	
88	Sr	115	422.626	2493976	1.24	203.1	200	109.7	80	120	
95	Mo	115	223.143	870749	0.47	11.1	200	106.0	80	120	
107	Ag	115	202.362	2460163	0.34	0.0	200	101.2	80	120	
111	Cd	115	196.342	396606	0.20	0.0	200	98.2	80	120	
118	Sn	115	211.135	968143	1.00	0.0	200	105.6	80	120	
121	Sb	115	504.957	3710050	1.33	309.3	200	97.8	80	120	
137	Ba	115	257.160	617221	0.98	60.9	200	98.1	80	120	
205	Tl	209	192.260	5624601	0.59	0.0	200	96.1	80	120	
208	Pb	209	195.757	7587366	0.87	0.1	200	97.8	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1368643	2.36	1522183	89.91	70	120	
72	Ge	986654	0.43	1074520	91.82	70	120	
115	In	10215913	0.37	11514007	88.73	70	120	
209	Bi	20918031	1.29	22396997	93.40	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/29/2014 12:39	Sample Name	1405261-03A MSD
Data Batch	140529.b	Comment	MSD 6020A_W
Data File Name	101_MSS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	197.081	10291	1.14	0.0	200	98.5	80	120	
11	B	45	188.567	8039	0.87	-20.4	200	104.5	80	120	
23	Na	45	9403.604	6553502	0.49	4721.9	1000	468.2	80	120	Fail
24	Mg	45	9771.456	3604215	3.03	5220.3	1000	455.1	80	120	Fail
27	Al	45	4859.539	947749	0.38	16.5	1000	484.3	80	120	Fail
39	K	45	7229.368	3252127	0.78	2014.1	1000	521.5	80	120	Fail
44	Ca	45	########	3016010	1.28	111858.8	1000	202.4	80	120	Fail
47	Ti	45	214.200	34422	0.51	0.1	200	107.0	80	120	
51	V	45	196.843	993323	0.71	1.1	200	97.9	80	120	
52	Cr	45	197.974	1165824	0.27	0.3	200	98.8	80	120	
55	Mn	45	234.984	945801	0.68	43.7	200	95.7	80	120	
56	Fe	45	4881.476	28073074	0.34	14.5	1000	486.7	80	120	Fail
59	Co	72	199.661	1789289	0.76	0.3	200	99.7	80	120	
60	Ni	72	190.602	459462	0.84	0.1	200	95.2	80	120	
63	Cu	72	190.062	1250391	0.44	1.6	200	94.2	80	120	
66	Zn	72	182.862	258630	0.31	1.1	200	90.9	80	120	
75	As	72	194.632	212336	0.33	6.0	200	94.3	80	120	
78	Se	72	196.371	16000	0.69	0.4	200	98.0	80	120	
88	Sr	115	428.984	2517880	1.58	203.1	200	112.9	80	120	
95	Mo	115	222.883	864992	0.65	11.1	200	105.9	80	120	
107	Ag	115	204.525	2472181	3.62	0.0	200	102.2	80	120	
111	Cd	115	195.419	392579	0.47	0.0	200	97.7	80	120	
118	Sn	115	211.685	965327	0.70	0.0	200	105.8	80	120	
121	Sb	115	505.304	3692175	0.70	309.3	200	98.0	80	120	
137	Ba	115	256.725	612750	0.20	60.9	200	97.9	80	120	
205	Tl	209	198.070	5667344	1.93	0.0	200	99.0	80	120	
208	Pb	209	201.257	7630417	0.75	0.1	200	100.6	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1367409	1.17	1522183	89.83	70	120	
72	Ge	987467	0.25	1074520	91.90	70	120	
115	In	10162443	2.20	11514007	88.26	70	120	
209	Bi	20462323	1.23	22396997	91.36	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/29/2014 12:40	Sample Name	CCV4-140529
Data Batch	140529.b	Comment	CCV ICPMS_TW
Data File Name	102_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	200.105	10489	1.33	200	100.1	90	110	
11	B	45	189.257	8089	2.31	200	94.6	90	110	
23	Na	45	4986.204	3517597	1.45	5000	99.7	90	110	
24	Mg	45	5197.201	1925286	2.09	5000	103.9	90	110	
27	Al	45	5158.206	1009966	0.46	5000	103.2	90	110	
39	K	45	5219.238	2373822	0.36	5000	104.4	90	110	
44	Ca	45	5505.857	146638	0.50	5000	110.1	90	110	Fail
47	Ti	45	217.264	35055	0.95	200	108.6	90	110	
51	V	45	202.899	1027948	0.42	200	101.4	90	110	
52	Cr	45	206.418	1220154	0.71	200	103.2	90	110	
55	Mn	45	199.468	806110	0.69	200	99.7	90	110	
56	Fe	45	5124.036	29581533	1.16	5000	102.5	90	110	
59	Co	72	207.098	1878500	1.07	200	103.5	90	110	
60	Ni	72	200.647	489427	0.47	200	100.3	90	110	
63	Cu	72	200.588	1335581	0.89	200	100.3	90	110	
66	Zn	72	195.913	280422	0.43	200	98.0	90	110	
75	As	72	192.464	212514	0.30	200	96.2	90	110	
78	Se	72	202.780	16719	1.49	200	101.4	90	110	
88	Sr	115	216.367	1303554	0.21	200	108.2	90	110	
95	Mo	115	213.794	851682	0.92	200	106.9	90	110	
107	Ag	115	208.373	2586044	2.43	200	104.2	90	110	
111	Cd	115	202.989	418602	0.31	200	101.5	90	110	
118	Sn	115	210.705	986393	1.00	200	105.4	90	110	
121	Sb	115	199.619	1497505	0.55	200	99.8	90	110	
137	Ba	115	202.454	496081	0.20	200	101.2	90	110	
205	Tl	209	196.903	5888815	1.01	200	98.5	90	110	
208	Pb	209	202.152	8009322	1.07	200	101.1	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1372827	1.17	1522183	90.19	70	120	
72	Ge	999445	0.66	1074520	93.01	70	120	
115	In	10429450	0.48	11514007	90.58	70	120	
209	Bi	21387121	2.05	22396997	95.49	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/29/2014 12:44	Sample Name	LCVL4-140529
Data Batch	140529.b	Comment	LCVLICPMS_TW
Data File Name	104LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.936	53	23.19	1	93.6	70	130	
11	B	45	-34.480	2804	0.90	20	-172.4	70	130	Fail
23	Na	45	107.069	144393	0.36	100	107.1	70	130	
24	Mg	45	103.406	41509	0.63	100	103.4	70	130	
27	Al	45	95.975	20258	2.36	100	96.0	70	130	
39	K	45	101.924	111746	0.74	100	101.9	70	130	
44	Ca	45	112.740	3448	2.03	100	112.7	70	130	
47	Ti	45	5.008	870	5.64	5	100.2	70	130	
51	V	45	1.090	8098	0.44	1	109.0	70	130	
52	Cr	45	4.777	32910	1.43	5	95.5	70	130	
55	Mn	45	4.679	20457	2.23	5	93.6	70	130	
56	Fe	45	86.829	550371	0.65	100	86.8	70	130	
59	Co	72	4.901	46103	0.69	5	98.0	70	130	
60	Ni	72	4.561	13269	1.70	5	91.2	70	130	
63	Cu	72	4.906	35041	1.89	5	98.1	70	130	
66	Zn	72	4.567	7096	2.20	5	91.3	70	130	
75	As	72	4.519	5364	0.51	5	90.4	70	130	
78	Se	72	5.128	524	3.09	5	102.6	70	130	
88	Sr	115	4.933	30986	0.96	5	98.7	70	130	
95	Mo	115	4.627	19212	0.44	5	92.5	70	130	
107	Ag	115	1.853	23921	1.79	2	92.6	70	130	
111	Cd	115	0.955	2097	6.45	1	95.5	70	130	
118	Sn	115	4.943	24879	1.76	5	98.9	70	130	
121	Sb	115	1.788	14212	0.46	2	89.4	70	130	
137	Ba	115	4.790	12255	3.73	5	95.8	70	130	
205	Tl	209	0.964	30240	0.85	1	96.4	70	130	
208	Pb	209	0.986	44371	0.95	1	98.6	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1460981	2.29	1522183	95.98	70	120	
72	Ge	1030964	0.37	1074520	95.95	70	120	
115	In	10841144	1.09	11514007	94.16	70	120	
209	Bi	22001570	0.75	22396997	98.23	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/29/2014 12:46	Sample Name	CCB4-140529
Data Batch	140529.b	Comment	CCB ICPMS_TW
Data File Name	105_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.092	6	90.6	0.4	0.3	
11	B	45	-60.009	2119	4.4	10	10	
23	Na	45	21.566	80453	13.9	50	100	
24	Mg	45	8.147	3927	66.6	50	100	
27	Al	45	16.653	3694	67.5	50	10	FailAq
39	K	45	3.083	64423	3.3	50	100	
44	Ca	45	146.842	4354	68.3	50	100	FailAq FailSoil
47	Ti	45	0.213	47	75.6	4	3	
51	V	45	0.211	3329	8.6	4	3	
52	Cr	45	-0.069	2479	25.4	2	2	
55	Mn	45	0.162	1040	51.4	2	3	
56	Fe	45	14.707	106180	65.1	50	50	
59	Co	72	0.084	1034	61.5	2	3	
60	Ni	72	-0.319	1032	16.2	2	3	
63	Cu	72	0.069	1852	26.4	2	2	
66	Zn	72	0.114	530	27.4	4	2	
75	As	72	0.105	341	26.1	2	2	
78	Se	72	0.276	113	11.0	1	2	
88	Sr	115	0.402	2628	68.2	4	3	
95	Mo	115	0.148	668	71.6	2	2	
107	Ag	115	0.068	904	53.1	0.4	1	
111	Cd	115	0.108	282	69.9	0.4	0.3	
118	Sn	115	0.064	1166	25.5	4	3	
121	Sb	115	0.187	1745	39.4	2	0.8	
137	Ba	115	0.314	863	62.3	2	3	
205	Tl	209	0.110	3932	48.2	2	0.5	
208	Pb	209	0.116	8838	33.4	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1445156	2.22	1522183	94.94	70	120	
72	Ge	1028846	0.19	1074520	95.75	70	120	
115	In	10896338	0.44	11514007	94.64	70	120	
209	Bi	21787507	0.65	22396997	97.28	70	120	

Sample Report

Date Acquired	5/29/14 12:48 PM	Sample Name	1405261-08A
Data Batch	140529.b	Comment	SAMP6020A_W
Data File Name	106_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.163	9	16.37	2000	
11	B	45	310.526	11296	1.33	2000	>RL
23	Na	45	26682.386	18977625	1.70	25000	OUTCAL
24	Mg	45	7132.840	2702271	1.80	25000	>RL
27	Al	45	163.752	33047	0.75	10000	>RL
39	K	45	9340.121	4296979	1.31	25000	>RL
44	Ca	45	160295.240	4360499	1.92	10000	OUTCAL
47	Ti	45	3.129	534	79.63	2000	J
51	V	45	1.816	11539	0.40	2000	
52	Cr	45	0.316	4734	1.59	2000	
55	Mn	45	144.200	596137	0.22	2000	>RL
56	Fe	45	654.100	3876609	0.99	10000	>RL
59	Co	72	0.836	7879	1.67	2000	
60	Ni	72	1.103	4488	4.81	2000	
63	Cu	72	2.443	17703	2.07	2000	J
66	Zn	72	6.441	9622	2.79	2000	>RL
75	As	72	2.751	3273	2.54	2000	J
78	Se	72	3.483	375	9.18	2000	J
88	Sr	115	585.925	3589136	0.30	2000	>RL
95	Mo	115	1.086	4452	1.95	2000	
107	Ag	115	0.127	1620	4.79	500	
111	Cd	115	0.241	553	5.52	2000	
118	Sn	115	0.233	1940	4.81	2000	
121	Sb	115	21.692	165688	0.84	500	>RL
137	Ba	115	119.161	296915	0.74	2000	>RL
205	Tl	209	0.159	5247	5.43	2000	
208	Pb	209	1.229	51829	0.29	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1404616	2.55	1522183	92.28	70	120	
72	Ge	1006186	0.90	1074520	93.64	70	120	
115	In	10604664	0.81	11514007	92.10	70	120	
209	Bi	21016545	1.15	22396997	93.84	70	120	

Sample Report

Date Acquired	5/29/14 12:50 PM	Sample Name	1405261-09A
Data Batch	140529.b	Comment	SAMP6020A_W
Data File Name	107_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.107	6	18.23	2000	
11	B	45	238.524	9459	1.22	2000	>RL
23	Na	45	45927.472	32484692	1.31	25000	OUTCAL
24	Mg	45	12974.837	4893253	0.25	25000	>RL
27	Al	45	30.510	6342	9.33	10000	>RL
39	K	45	4294.088	1999855	1.83	25000	>RL
44	Ca	45	185869.652	5033017	0.67	10000	OUTCAL
47	Ti	45	0.322	63	60.70	2000	
51	V	45	5.394	29910	0.36	2000	J
52	Cr	45	0.205	4047	4.78	2000	
55	Mn	45	1.621	7006	5.86	2000	
56	Fe	45	29.592	190404	8.69	10000	
59	Co	72	0.339	3355	2.99	2000	
60	Ni	72	5.602	15555	1.15	2000	J
63	Cu	72	0.578	5236	4.16	2000	
66	Zn	72	8.807	13079	1.32	2000	>RL
75	As	72	8.888	10125	2.36	2000	>RL
78	Se	72	25.915	2236	1.12	2000	>RL
88	Sr	115	1130.214	6883219	0.93	2000	>RL
95	Mo	115	13.724	55318	1.30	2000	>RL
107	Ag	115	0.130	1655	19.44	500	
111	Cd	115	0.206	478	15.03	2000	
118	Sn	115	0.143	1501	1.05	2000	
121	Sb	115	42.654	323678	0.55	500	>RL
137	Ba	115	43.268	107223	0.94	2000	>RL
205	Tl	209	0.133	4440	10.35	2000	
208	Pb	209	0.181	10933	7.53	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1398017	0.73	1522183	91.84	70	120	
72	Ge	1009961	0.39	1074520	93.99	70	120	
115	In	10543529	1.28	11514007	91.57	70	120	
209	Bi	20817089	0.82	22396997	92.95	70	120	

Sample Report

Date Acquired	5/29/14 12:52 PM	Sample Name	1405261-10A
Data Batch	140529.b	Comment	SAMP6020A_W
Data File Name	108_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.062	4	43.30	2000	
11	B	45	514.035	16622	2.46	2000	>RL
23	Na	45	24636.167	17808617	1.64	25000	>RL
24	Mg	45	8804.310	3388030	1.07	25000	>RL
27	Al	45	18.579	4051	5.87	10000	J
39	K	45	18100.933	8403541	2.50	25000	>RL
44	Ca	45	145954.292	4032827	1.02	10000	OUTCAL
47	Ti	45	0.163	38	20.39	2000	
51	V	45	7.580	42003	0.31	2000	J
52	Cr	45	0.428	5497	5.78	2000	
55	Mn	45	0.490	2406	4.61	2000	
56	Fe	45	12.796	93702	5.69	10000	
59	Co	72	0.080	994	11.54	2000	
60	Ni	72	-0.013	1786	6.14	2000	
63	Cu	72	0.461	4504	1.09	2000	
66	Zn	72	0.786	1507	2.18	2000	
75	As	72	29.648	33631	1.04	2000	>RL
78	Se	72	28.698	2494	2.58	2000	>RL
88	Sr	115	421.509	2609644	0.75	2000	>RL
95	Mo	115	9.393	38504	0.71	2000	>RL
107	Ag	115	0.057	750	6.71	500	
111	Cd	115	0.067	190	7.02	2000	
118	Sn	115	0.036	1013	3.66	2000	
121	Sb	115	125.896	970647	0.72	500	>RL
137	Ba	115	100.620	253410	1.01	2000	>RL
205	Tl	209	0.135	4551	6.00	2000	
208	Pb	209	0.080	7149	2.75	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1426708	2.10	1522183	93.73	70	120	
72	Ge	1021094	1.09	1074520	95.03	70	120	
115	In	10717971	0.82	11514007	93.09	70	120	
209	Bi	21089984	1.09	22396997	94.16	70	120	

Sample Report

Date Acquired	5/29/14 12:54 PM	Sample Name	1405261-11A
Data Batch	140529.b	Comment	SAMP6020A_W
Data File Name	109_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.063	4	66.14	2000	
11	B	45	292.916	10916	3.04	2000	>RL
23	Na	45	38659.403	27635189	0.68	25000	OUTCAL
24	Mg	45	11180.904	4260404	0.72	25000	>RL
27	Al	45	33.396	6988	5.30	10000	>RL
39	K	45	11630.400	5366346	0.55	25000	>RL
44	Ca	45	180989.606	4951758	2.14	10000	OUTCAL
47	Ti	45	0.445	84	17.80	2000	
51	V	45	17.585	93632	0.18	2000	>RL
52	Cr	45	0.027	3004	8.77	2000	
55	Mn	45	0.898	4072	4.06	2000	
56	Fe	45	23.418	155750	1.74	10000	
59	Co	72	0.062	824	6.50	2000	
60	Ni	72	0.152	2186	7.96	2000	
63	Cu	72	4.548	32145	0.46	2000	J
66	Zn	72	1.443	2457	6.25	2000	
75	As	72	383.188	430370	0.41	2000	>RL
78	Se	72	110.389	9303	0.42	2000	>RL
88	Sr	115	583.247	3563466	1.71	2000	>RL
95	Mo	115	22.577	91262	0.11	2000	>RL
107	Ag	115	0.055	712	6.95	500	
111	Cd	115	0.055	164	21.68	2000	
118	Sn	115	-0.005	804	9.65	2000	
121	Sb	115	324.121	2466089	1.14	500	>RL
137	Ba	115	54.273	134924	0.64	2000	>RL
205	Tl	209	0.101	3515	1.94	2000	
208	Pb	209	0.058	6236	1.22	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1412648	1.95	1522183	92.80	70	120	
72	Ge	1017097	0.73	1074520	94.66	70	120	
115	In	10579799	2.00	11514007	91.89	70	120	
209	Bi	20850598	0.80	22396997	93.10	70	120	

Sample Report

Date Acquired	5/29/14 12:56 PM	Sample Name	1405261-12A
Data Batch	140529.b	Comment	SAMP6020A_W
Data File Name	110_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.020	2	124.90	2000	
11	B	45	64.838	5198	1.32	2000	>RL
23	Na	45	180998.848	129055644	2.08	25000	OUTCAL
24	Mg	45	19502.759	7425427	0.61	25000	>RL
27	Al	45	28.134	5931	5.02	10000	J
39	K	45	5806.792	2708123	2.02	25000	>RL
44	Ca	45	103104.380	2818604	1.28	10000	OUTCAL
47	Ti	45	0.567	104	8.03	2000	
51	V	45	3.830	22065	3.33	2000	J
52	Cr	45	0.089	3383	3.87	2000	
55	Mn	45	1.281	5664	2.09	2000	
56	Fe	45	10.722	80398	6.84	10000	
59	Co	72	2.699	24680	0.44	2000	
60	Ni	72	19.017	47920	2.07	2000	>RL
63	Cu	72	34.644	231397	0.41	2000	>RL
66	Zn	72	100.572	143890	0.79	2000	>RL
75	As	72	92.235	101793	0.63	2000	>RL
78	Se	72	39.189	3296	1.94	2000	>RL
88	Sr	115	478.743	2900564	1.47	2000	>RL
95	Mo	115	113.105	453213	0.74	2000	>RL
107	Ag	115	0.063	810	13.60	500	
111	Cd	115	0.152	362	13.41	2000	
118	Sn	115	0.178	1660	5.59	2000	
121	Sb	115	1016.217	7666569	0.92	500	OUTCAL
137	Ba	115	98.346	242402	1.16	2000	>RL
205	Tl	209	0.131	4263	3.80	2000	
208	Pb	209	0.525	23691	2.03	2000	J

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1411637	1.64	1522183	92.74	70	120	
72	Ge	997807	0.43	1074520	92.86	70	120	
115	In	10489984	1.05	11514007	91.11	70	120	
209	Bi	20368936	0.63	22396997	90.94	70	120	

Sample Report

Date Acquired	5/29/14 12:58 PM	Sample Name	1405261-13A
Data Batch	140529.b	Comment	SAMP6020A_W
Data File Name	111_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.056	4	56.77	2000	
11	B	45	292.311	11099	1.05	2000	>RL
23	Na	45	37487.056	27278797	2.19	25000	OUTCAL
24	Mg	45	11104.689	4307279	1.64	25000	>RL
27	Al	45	77.466	16155	4.54	10000	>RL
39	K	45	11034.682	5185287	3.07	25000	>RL
44	Ca	45	179788.703	5006217	2.37	10000	OUTCAL
47	Ti	45	0.470	90	9.80	2000	
51	V	45	17.164	93083	0.59	2000	>RL
52	Cr	45	0.146	3799	3.09	2000	
55	Mn	45	0.749	3522	4.67	2000	
56	Fe	45	18.157	126798	1.55	10000	
59	Co	72	0.042	640	6.40	2000	
60	Ni	72	0.178	2248	4.16	2000	
63	Cu	72	0.467	4525	4.09	2000	
66	Zn	72	1.600	2685	4.65	2000	
75	As	72	376.883	423132	0.83	2000	>RL
78	Se	72	109.108	9193	0.25	2000	>RL
88	Sr	115	569.785	3497624	1.84	2000	>RL
95	Mo	115	22.470	91242	0.95	2000	>RL
107	Ag	115	0.033	436	7.43	500	
111	Cd	115	0.035	121	23.41	2000	
118	Sn	115	-0.025	716	4.23	2000	
121	Sb	115	328.913	2513585	1.60	500	>RL
137	Ba	115	53.808	134367	0.82	2000	>RL
205	Tl	209	0.078	2866	5.04	2000	
208	Pb	209	0.052	6099	1.37	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1437839	1.53	1522183	94.46	70	120	
72	Ge	1016705	0.38	1074520	94.62	70	120	
115	In	10626180	1.01	11514007	92.29	70	120	
209	Bi	21179490	1.30	22396997	94.56	70	120	

Sample Report

Date Acquired	5/29/14 1:00 PM	Sample Name	1405261-14A
Data Batch	140529.b	Comment	SAMP6020A_W
Data File Name	112_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.041	3	57.74	2000	
11	B	45	-40.897	2687	9.42	2000	
23	Na	45	187.468	207420	3.17	25000	>RL
24	Mg	45	32.635	13876	5.53	25000	
27	Al	45	70.168	15163	1.52	10000	>RL
39	K	45	20.497	74688	0.44	25000	
44	Ca	45	440.561	12955	6.13	10000	>RL
47	Ti	45	0.198	46	18.41	2000	
51	V	45	0.176	3238	6.70	2000	
52	Cr	45	-0.082	2474	4.74	2000	
55	Mn	45	0.034	511	6.97	2000	
56	Fe	45	4.916	48372	1.08	10000	
59	Co	72	0.002	279	14.41	2000	
60	Ni	72	-0.373	926	4.14	2000	
63	Cu	72	0.519	5085	2.86	2000	
66	Zn	72	1.338	2404	4.09	2000	
75	As	72	0.932	1320	8.06	2000	
78	Se	72	0.326	121	13.21	2000	
88	Sr	115	2.105	13829	6.49	2000	
95	Mo	115	0.096	469	12.16	2000	
107	Ag	115	0.023	330	14.14	500	
111	Cd	115	0.002	57	59.69	2000	
118	Sn	115	-0.064	559	14.71	2000	
121	Sb	115	0.875	7386	1.97	500	J
137	Ba	115	0.398	1117	11.34	2000	
205	Tl	209	0.005	747	5.80	2000	
208	Pb	209	0.044	6058	4.52	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1487370	0.72	1522183	97.71	70	120	
72	Ge	1061149	1.08	1074520	98.76	70	120	
115	In	11288048	1.31	11514007	98.04	70	120	
209	Bi	22284315	0.18	22396997	99.50	70	120	

Sample Report

Date Acquired	5/29/14 1:01 PM	Sample Name	1405261-15A
Data Batch	140529.b	Comment	SAMP6020A_W
Data File Name	113_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.025	2	100.00	2000	
11	B	45	226.193	9491	1.69	2000	>RL
23	Na	45	73156.990	53608177	1.69	25000	OUTCAL
24	Mg	45	10869.873	4249801	1.15	25000	>RL
27	Al	45	38.023	8132	2.58	10000	>RL
39	K	45	5670.680	2717663	0.64	25000	>RL
44	Ca	45	192963.949	5417992	2.46	10000	OUTCAL
47	Ti	45	0.480	92	45.76	2000	
51	V	45	3.188	19230	2.65	2000	J
52	Cr	45	0.143	3808	2.63	2000	
55	Mn	45	2.962	12983	3.12	2000	
56	Fe	45	32.693	216374	0.35	10000	
59	Co	72	0.162	1749	4.95	2000	
60	Ni	72	0.720	3608	1.02	2000	
63	Cu	72	0.572	5260	2.40	2000	
66	Zn	72	19.853	29396	0.54	2000	>RL
75	As	72	2.631	3190	2.04	2000	J
78	Se	72	87.224	7409	1.52	2000	>RL
88	Sr	115	953.387	5868269	1.70	2000	>RL
95	Mo	115	4.427	18078	4.37	2000	J
107	Ag	115	0.023	312	23.01	500	
111	Cd	115	0.025	100	26.46	2000	
118	Sn	115	0.003	848	5.89	2000	
121	Sb	115	1.930	15055	2.02	500	J
137	Ba	115	38.018	95220	0.41	2000	>RL
205	Tl	209	0.030	1415	5.17	2000	
208	Pb	209	0.233	12943	1.09	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1449413	1.11	1522183	95.22	70	120	
72	Ge	1022595	1.47	1074520	95.17	70	120	
115	In	10657279	1.86	11514007	92.56	70	120	
209	Bi	20794858	1.11	22396997	92.85	70	120	

Sample Report

Date Acquired	5/29/14 1:03 PM	Sample Name	1405261-16A
Data Batch	140529.b	Comment	SAMP6020A_W
Data File Name	114_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.025	2	100.00	2000	
11	B	45	921.774	27398	2.44	2000	>RL
23	Na	45	103239.448	75650744	2.26	25000	OUTCAL
24	Mg	45	22247.825	8702880	2.83	25000	>RL
27	Al	45	12.733	2901	4.76	10000	J
39	K	45	4269.092	2062705	3.33	25000	>RL
44	Ca	45	178530.101	5011956	0.75	10000	OUTCAL
47	Ti	45	0.158	38	43.52	2000	
51	V	45	0.920	7128	2.88	2000	
52	Cr	45	-0.134	2082	3.80	2000	
55	Mn	45	47.182	201629	1.25	2000	>RL
56	Fe	45	16.120	115414	1.21	10000	
59	Co	72	0.186	1990	4.83	2000	
60	Ni	72	0.487	3057	1.07	2000	
63	Cu	72	0.298	3429	5.62	2000	
66	Zn	72	12.496	18795	1.19	2000	>RL
75	As	72	1.451	1874	0.96	2000	
78	Se	72	0.659	146	12.88	2000	
88	Sr	115	2749.582	16986269	1.12	2000	OUTCAL
95	Mo	115	1.451	5982	2.40	2000	
107	Ag	115	0.028	380	5.75	500	
111	Cd	115	0.018	87	6.66	2000	
118	Sn	115	0.323	2386	6.14	2000	
121	Sb	115	0.655	5311	5.64	500	
137	Ba	115	32.597	81975	2.14	2000	>RL
205	Tl	209	0.024	1251	3.40	2000	
208	Pb	209	0.065	6484	2.52	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1450259	3.16	1522183	95.27	70	120	
72	Ge	1031230	0.33	1074520	95.97	70	120	
115	In	10698332	2.57	11514007	92.92	70	120	
209	Bi	20778475	0.45	22396997	92.77	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/29/2014 13:07	Sample Name	CCV5-140529
Data Batch	140529.b	Comment	CCV ICPMS_TW
Data File Name	116_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	190.088	11043	2.53	200	95.0	90	110	
11	B	45	182.568	8788	3.42	200	91.3	90	110	
23	Na	45	5647.004	4407055	1.58	5000	112.9	90	110	Fail
24	Mg	45	5063.794	2079831	1.99	5000	101.3	90	110	
27	Al	45	5010.555	1087512	0.74	5000	100.2	90	110	
39	K	45	5188.020	2615637	1.58	5000	103.8	90	110	
44	Ca	45	5673.670	167475	0.71	5000	113.5	90	110	Fail
47	Ti	45	212.483	38005	2.00	200	106.2	90	110	
51	V	45	195.354	1097245	0.40	200	97.7	90	110	
52	Cr	45	198.265	1299065	1.74	200	99.1	90	110	
55	Mn	45	193.715	867752	0.79	200	96.9	90	110	
56	Fe	45	4927.465	31539954	0.66	5000	98.5	90	110	
59	Co	72	205.574	1992783	1.20	200	102.8	90	110	
60	Ni	72	201.175	524493	0.52	200	100.6	90	110	
63	Cu	72	199.938	1422887	0.55	200	100.0	90	110	
66	Zn	72	196.509	300629	0.76	200	98.3	90	110	
75	As	72	193.332	228174	0.36	200	96.7	90	110	
78	Se	72	201.724	17778	0.31	200	100.9	90	110	
88	Sr	115	222.767	1462114	1.99	200	111.4	90	110	Fail
95	Mo	115	209.165	907570	0.48	200	104.6	90	110	
107	Ag	115	201.955	2730016	2.35	200	101.0	90	110	
111	Cd	115	197.354	443328	0.96	200	98.7	90	110	
118	Sn	115	205.560	1048112	0.46	200	102.8	90	110	
121	Sb	115	200.507	1638427	0.62	200	100.3	90	110	
137	Ba	115	196.450	524324	0.59	200	98.2	90	110	
205	Tl	209	194.579	6175077	1.66	200	97.3	90	110	
208	Pb	209	199.085	8370194	0.85	200	99.5	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1522267	2.42	1522183	100.01	70	120	
72	Ge	1068312	1.13	1074520	99.42	70	120	
115	In	11362127	1.87	11514007	98.68	70	120	
209	Bi	22692965	2.09	22396997	101.32	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/29/2014 13:11	Sample Name	LCVL5-140529
Data Batch	140529.b	Comment	LCVLICPMS_TW
Data File Name	118LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.891	52	10.87	1	89.1	70	130	
11	B	45	-47.224	2571	5.03	20	-236.1	70	130	Fail
23	Na	45	349.757	336277	4.04	100	349.8	70	130	Fail
24	Mg	45	163.715	67865	1.86	100	163.7	70	130	Fail
27	Al	45	98.361	21586	1.28	100	98.4	70	130	
39	K	45	106.262	118320	0.96	100	106.3	70	130	
44	Ca	45	234.962	7182	4.18	100	235.0	70	130	Fail
47	Ti	45	4.732	856	1.92	5	94.6	70	130	
51	V	45	1.204	9058	4.16	1	120.4	70	130	
52	Cr	45	4.814	34471	1.76	5	96.3	70	130	
55	Mn	45	4.723	21474	0.12	5	94.5	70	130	
56	Fe	45	89.533	589554	1.37	100	89.5	70	130	
59	Co	72	4.984	48755	1.10	5	99.7	70	130	
60	Ni	72	4.601	13905	2.26	5	92.0	70	130	
63	Cu	72	4.938	36673	2.08	5	98.8	70	130	
66	Zn	72	4.660	7524	1.64	5	93.2	70	130	
75	As	72	4.621	5700	2.77	5	92.4	70	130	
78	Se	72	5.279	558	4.78	5	105.6	70	130	
88	Sr	115	7.953	52028	2.94	5	159.1	70	130	Fail
95	Mo	115	4.735	20506	2.36	5	94.7	70	130	
107	Ag	115	1.894	25499	1.50	2	94.7	70	130	
111	Cd	115	1.003	2294	4.02	1	100.3	70	130	
118	Sn	115	4.988	26178	2.13	5	99.8	70	130	
121	Sb	115	1.878	15553	2.24	2	93.9	70	130	
137	Ba	115	4.856	12958	1.75	5	97.1	70	130	
205	Tl	209	1.050	32942	1.98	1	105.0	70	130	
208	Pb	209	1.068	47792	1.64	1	106.8	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1518566	0.47	1522183	99.76	70	120	
72	Ge	1072275	0.27	1074520	99.79	70	120	
115	In	11305583	0.98	11514007	98.19	70	120	
209	Bi	22034055	1.09	22396997	98.38	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/29/2014 13:13	Sample Name	CCB5-140529
Data Batch	140529.b	Comment	CCB ICPMS_TW
Data File Name	119_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.070	5	53.9	0.4	0.3	
11	B	45	-70.191	1912	5.5	10	10	
23	Na	45	151.851	180744	4.5	50	100	FailAq FailSoil
24	Mg	45	35.856	15170	7.4	50	100	
27	Al	45	1.115	517	14.2	50	10	
39	K	45	3.162	66431	0.5	50	100	
44	Ca	45	86.738	2766	1.2	50	100	FailSoil
47	Ti	45	0.026	16	32.7	4	3	
51	V	45	0.234	3558	4.0	4	3	
52	Cr	45	-0.102	2342	3.8	2	2	
55	Mn	45	0.119	882	18.1	2	3	
56	Fe	45	1.159	24898	3.9	50	50	
59	Co	72	0.053	764	0.7	2	3	
60	Ni	72	-0.350	976	6.8	2	3	
63	Cu	72	0.065	1865	8.9	2	2	
66	Zn	72	0.035	422	7.5	4	2	
75	As	72	0.101	344	1.2	2	2	
78	Se	72	0.246	113	11.7	1	2	
88	Sr	115	2.019	13111	8.1	4	3	
95	Mo	115	0.064	328	6.5	2	2	
107	Ag	115	0.072	978	15.8	0.4	1	
111	Cd	115	0.058	179	23.7	0.4	0.3	
118	Sn	115	0.014	946	8.4	4	3	
121	Sb	115	0.120	1241	7.6	2	0.8	
137	Ba	115	0.148	447	14.4	2	3	
205	Tl	209	0.058	2388	4.2	2	0.5	
208	Pb	209	0.059	6625	2.8	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1490025	3.17	1522183	97.89	70	120	
72	Ge	1052319	0.37	1074520	97.93	70	120	
115	In	11152710	1.44	11514007	96.86	70	120	
209	Bi	22049439	0.96	22396997	98.45	70	120	

Method Blank Report

Date Acquired	5/29/14 1:15 PM	Sample Name	MB-63798
Data Batch	140529.b	Comment	MBLK6020A_W
Data File Name	120_LRB.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.035	3	57.28		
11	B	45	-71.386	1893	10.08		
23	Na	45	84.507	130998	5.99		
24	Mg	45	18.310	8185	10.66		
27	Al	45	2.339	781	8.64		
39	K	45	7.484	68935	1.06		
44	Ca	45	48.277	1667	3.42		
47	Ti	45	0.051	20	44.10		
51	V	45	0.200	3396	6.13		
52	Cr	45	-0.045	2727	3.09		
55	Mn	45	0.126	918	6.91		
56	Fe	45	2.023	30505	3.64		
59	Co	72	0.022	468	12.22		
60	Ni	72	-0.335	1018	9.85		
63	Cu	72	0.489	4852	2.85		
66	Zn	72	0.361	917	4.81		
75	As	72	0.044	279	12.80		
78	Se	72	0.288	117	14.39		
88	Sr	115	0.982	6314	13.19		
95	Mo	115	0.042	232	5.04		
107	Ag	115	0.042	572	11.32		
111	Cd	115	0.009	69	16.99		
118	Sn	115	-0.021	760	11.47		
121	Sb	115	0.059	739	8.09		
137	Ba	115	0.087	282	13.69		
205	Tl	209	0.024	1330	10.05		
208	Pb	209	0.022	5126	3.86		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1498651	1.81	1522183	98.45	70	120	
72	Ge	1056771	1.08	1074520	98.35	70	120	
115	In	10975465	1.65	11514007	95.32	70	120	
209	Bi	22135854	1.03	22396997	98.83	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/29/2014 13:21	Sample Name	LCS-63798
Data Batch	140529.b	Comment	LCS 6020A_W
Data File Name	123_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	188.803	10720	1.26	200	188.8	80	120	
11	B	45	119.964	6930	3.43	200	120.0	80	120	
23	Na	45	5335.355	4072915	1.95	5000	5335.4	80	120	Fail
24	Mg	45	4957.625	1989148	0.88	5000	4957.6	80	120	
27	Al	45	4756.181	1008786	0.41	5000	4756.2	80	120	
39	K	45	5046.171	2488640	3.23	5000	5046.2	80	120	
44	Ca	45	4856.728	140127	1.32	5000	4856.7	80	120	
47	Ti	45	208.400	36417	1.45	200	208.4	80	120	
51	V	45	191.307	1049898	0.89	200	191.3	80	120	
52	Cr	45	193.843	1241320	0.86	200	193.8	80	120	
55	Mn	45	190.112	832178	0.52	200	190.1	80	120	
56	Fe	45	4860.494	30395683	1.39	5000	4860.5	80	120	
59	Co	72	203.458	1939383	0.86	200	203.5	80	120	
60	Ni	72	195.410	500980	0.67	200	195.4	80	120	
63	Cu	72	196.359	1373988	0.47	200	196.4	80	120	
66	Zn	72	185.775	279468	0.18	200	185.8	80	120	
75	As	72	188.643	218910	0.85	200	188.6	80	120	
78	Se	72	198.724	17222	0.70	200	198.7	80	120	
88	Sr	115	206.428	1314181	0.35	200	206.4	80	120	
95	Mo	115	206.572	869567	0.35	200	206.6	80	120	
107	Ag	115	197.720	2593206	1.03	200	197.7	80	120	
111	Cd	115	192.948	420434	0.54	200	192.9	80	120	
118	Sn	115	202.663	1002493	0.21	200	202.7	80	120	
121	Sb	115	192.660	1527062	1.11	200	192.7	80	120	
137	Ba	115	191.312	495343	0.40	200	191.3	80	120	
205	Tl	209	192.671	5875760	0.88	200	192.7	80	120	
208	Pb	209	197.630	7985992	1.46	200	197.6	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1486968	0.90	1522183	97.69	70	120	
72	Ge	1050311	0.24	1074520	97.75	70	120	
115	In	11021390	1.30	11514007	95.72	70	120	
209	Bi	21807725	1.33	22396997	97.37	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/29/2014 13:23	Sample Name	LCSD-63798
Data Batch	140529.b	Comment	LCSD6020A_W
Data File Name	124_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	193.057	10708	1.81	200	193.1	80	120	
11	B	45	128.307	6985	1.04	200	128.3	80	120	
23	Na	45	5105.371	3809787	2.91	5000	5105.4	80	120	Fail
24	Mg	45	5114.029	2004189	1.09	5000	5114.0	80	120	
27	Al	45	4880.762	1011136	0.54	5000	4880.8	80	120	
39	K	45	5276.447	2538102	1.48	5000	5276.4	80	120	
44	Ca	45	4904.325	138214	0.42	5000	4904.3	80	120	
47	Ti	45	211.328	36070	1.33	200	211.3	80	120	
51	V	45	195.096	1045816	0.22	200	195.1	80	120	
52	Cr	45	197.870	1237695	1.12	200	197.9	80	120	
55	Mn	45	192.831	824511	0.86	200	192.8	80	120	
56	Fe	45	4945.486	30206134	2.00	5000	4945.5	80	120	
59	Co	72	207.239	1952331	2.08	200	207.2	80	120	
60	Ni	72	196.589	498077	0.49	200	196.6	80	120	
63	Cu	72	195.668	1353131	0.33	200	195.7	80	120	
66	Zn	72	186.704	277576	0.99	200	186.7	80	120	
75	As	72	189.085	216843	0.91	200	189.1	80	120	
78	Se	72	199.985	17128	0.82	200	200.0	80	120	
88	Sr	115	206.772	1305678	0.35	200	206.8	80	120	
95	Mo	115	205.729	858912	0.97	200	205.7	80	120	
107	Ag	115	203.991	2653234	0.99	200	204.0	80	120	
111	Cd	115	195.369	422244	0.58	200	195.4	80	120	
118	Sn	115	203.289	997477	0.39	200	203.3	80	120	
121	Sb	115	199.926	1571700	4.55	200	199.9	80	120	
137	Ba	115	192.228	493652	0.63	200	192.2	80	120	
205	Tl	209	192.890	5830320	0.75	200	192.9	80	120	
208	Pb	209	200.648	8035940	0.83	200	200.6	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1452401	0.96	1522183	95.42	70	120	
72	Ge	1038052	0.80	1074520	96.61	70	120	
115	In	10932866	1.69	11514007	94.95	70	120	
209	Bi	21613014	1.16	22396997	96.50	70	120	

Dilution Sample (Dil) Report

Date Acquired	5/29/2014 13:28	Sample Name	1405265-04A SD
Data Batch	140529.b	Comment	SD 6020A_W
Data File Name	127_SD.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
9	Be	45	0.131	8	12.50	0.2	334.5	110	90	
11	B	45	268.716	10749	1.76	1538.6	87.3	110	90	
23	Na	45	98388.530	73196755	1.01	459749.0	107.0	110	90	Good
24	Mg	45	24382.176	9681585	0.22	113768.3	107.2	110	90	Good
27	Al	45	6.494	1640	5.59	20.0	162.7	110	90	
39	K	45	2438.819	1223639	0.05	11560.2	105.5	110	90	Good
44	Ca	45	97380.978	2776691	0.24	459416.0	106.0	110	90	Good
47	Ti	45	0.091	27	24.99	0.3	152.2	110	90	
51	V	45	0.395	4395	6.69	0.8	258.0	110	90	
52	Cr	45	1.664	13487	1.21	8.0	104.3	110	90	Good
55	Mn	45	0.184	1156	4.49	0.5	187.3	110	90	
56	Fe	45	2.474	32763	3.05	5.6	222.1	110	90	
59	Co	72	0.155	1749	3.31	0.4	179.9	110	90	
60	Ni	72	0.077	2081	5.27	1.6	24.1	110	90	
63	Cu	72	3.473	25883	1.25	15.4	112.5	110	90	
66	Zn	72	21.225	32505	0.76	97.8	108.6	110	90	Good
75	As	72	1.674	2184	2.62	8.1	103.5	110	90	Good
78	Se	72	5.051	531	1.13	24.0	105.3	110	90	Good
88	Sr	115	1457.025	9257007	0.50	7066.1	103.1	110	90	Good
95	Mo	115	0.308	1347	6.98	1.0	155.3	110	90	
107	Ag	115	0.149	1966	1.70	0.2	308.8	110	90	
111	Cd	115	0.113	296	8.16	0.2	370.7	110	90	
118	Sn	115	0.129	1499	8.16	0.4	154.0	110	90	
121	Sb	115	0.156	1508	4.90	0.3	273.8	110	90	
137	Ba	115	5.808	15066	0.76	27.6	105.1	110	90	Good
205	Tl	209	0.127	4306	12.56	0.2	310.1	110	90	
208	Pb	209	0.815	35931	0.92	3.6	114.1	110	90	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1472000	0.41	1522183	96.70	70	120	
72	Ge	1058419	0.86	1074520	98.50	70	120	
115	In	10998758	0.17	11514007	95.53	70	120	
209	Bi	21125168	0.60	22396997	94.32	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	5/29/2014 13:46	Sample Name	1405265-04A PDS
Data Batch	140529.b	Comment	PDS 6020A_W
Data File Name	136_PDS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	187.711	10543	0.13	0.2	200	93.8	75	125	
11	B	45	1646.298	46708	1.61	1538.6	200	53.9	75	125	Fail
23	Na	45	########	330182511	0.79	459749.0	5000	-304.9	75	125	Fail
24	Mg	45	########	44535282	1.43	113768.3	5000	-30.3	75	125	Fail
27	Al	45	4700.780	986228	0.70	20.0	5000	93.6	75	125	
39	K	45	16427.040	7867347	0.21	11560.2	5000	97.3	75	125	
44	Ca	45	########	12495760	1.03	459416.0	5000	-415.4	75	125	Fail
47	Ti	45	206.314	35667	1.35	0.3	200	103.0	75	125	
51	V	45	198.816	1079282	1.32	0.8	200	99.0	75	125	
52	Cr	45	206.258	1306436	1.87	8.0	200	99.1	75	125	
55	Mn	45	190.577	825198	0.33	0.5	200	95.0	75	125	
56	Fe	45	4571.174	28278854	0.71	5.6	5000	91.3	75	125	
59	Co	72	205.479	1881679	1.29	0.4	200	102.5	75	125	
60	Ni	72	192.415	473951	0.41	1.6	200	95.4	75	125	
63	Cu	72	201.803	1356569	0.57	15.4	200	93.2	75	125	
66	Zn	72	272.645	393879	1.09	97.8	200	87.4	75	125	
75	As	72	207.467	231270	0.52	8.1	200	99.7	75	125	
78	Se	72	229.791	19118	2.40	24.0	200	102.9	75	125	
88	Sr	115	7054.276	41747089	0.54	7066.1	200	-5.9	75	125	Fail
95	Mo	115	208.274	815035	0.27	1.0	200	103.6	75	125	
107	Ag	115	194.765	2374863	1.77	0.2	200	97.3	75	125	
111	Cd	115	200.109	405328	0.84	0.2	200	100.0	75	125	
118	Sn	115	216.791	996975	1.05	0.4	200	108.2	75	125	
121	Sb	115	205.303	1512659	0.94	0.3	200	102.5	75	125	
137	Ba	115	234.263	563905	0.91	27.6	200	103.3	75	125	
205	Tl	209	210.407	5669067	3.12	0.2	200	105.1	75	125	
208	Pb	209	214.388	7651951	0.41	3.6	200	105.4	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1470798	0.63	1522183	96.62	70	120	
72	Ge	1009051	0.42	1074520	93.91	70	120	
115	In	10247103	1.97	11514007	89.00	70	120	
209	Bi	19263324	1.10	22396997	86.01	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/29/2014 13:47	Sample Name	1405265-04A MS
Data Batch	140529.b	Comment	MS 6020A_W
Data File Name	137_MSS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	178.584	9628	0.48	0.2	200	89.2	80	120	
11	B	45	1747.414	47372	0.44	1538.6	200	104.4	80	120	
23	Na	45	########	334210893	0.24	459749.0	1000	896.3	80	120	Fail
24	Mg	45	########	45230403	1.03	113768.3	1000	499.7	80	120	Fail
27	Al	45	4801.716	966958	0.54	20.0	1000	478.2	80	120	Fail
39	K	45	16549.445	7606883	1.45	11560.2	1000	498.9	80	120	Fail
44	Ca	45	########	12902999	1.15	459416.0	1000	1245.6	80	120	Fail
47	Ti	45	211.793	35144	0.89	0.3	200	105.7	80	120	
51	V	45	196.946	1026171	1.33	0.8	200	98.1	80	120	
52	Cr	45	197.623	1201628	0.15	8.0	200	94.8	80	120	
55	Mn	45	186.316	774416	0.29	0.5	200	92.9	80	120	
56	Fe	45	4795.653	28478640	0.26	5.6	1000	479.0	80	120	Fail
59	Co	72	196.798	1766604	2.32	0.4	200	98.2	80	120	
60	Ni	72	183.004	441966	0.59	1.6	200	90.7	80	120	
63	Cu	72	194.681	1282938	0.55	15.4	200	89.6	80	120	
66	Zn	72	268.583	380360	0.83	97.8	200	85.4	80	120	
75	As	72	201.720	220438	0.46	8.1	200	96.8	80	120	
78	Se	72	225.945	18429	0.45	24.0	200	101.0	80	120	
88	Sr	115	7350.114	43320217	0.52	7066.1	200	142.0	80	120	Fail
95	Mo	115	213.231	830976	0.40	1.0	200	106.1	80	120	
107	Ag	115	189.365	2298856	1.60	0.2	200	94.6	80	120	
111	Cd	115	187.903	379062	1.42	0.2	200	93.9	80	120	
118	Sn	115	209.986	961680	0.34	0.4	200	104.8	80	120	
121	Sb	115	199.080	1460973	0.68	0.3	200	99.4	80	120	
137	Ba	115	224.236	537512	0.26	27.6	200	98.3	80	120	
205	Tl	209	196.385	5287876	1.40	0.2	200	98.1	80	120	
208	Pb	209	203.564	7262745	0.69	3.6	200	100.0	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1412033	1.49	1522183	92.76	70	120	
72	Ge	989153	0.40	1074520	92.06	70	120	
115	In	10204674	1.69	11514007	88.63	70	120	
209	Bi	19254183	1.18	22396997	85.97	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/29/2014 13:49	Sample Name	1405265-04A MSD
Data Batch	140529.b	Comment	MSD 6020A_W
Data File Name	138_MSS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	176.889	9665	1.22	0.2	200	88.3	80	120	
11	B	45	1726.630	47483	0.89	1538.6	200	94.0	80	120	
23	Na	45	########	333426645	0.71	459749.0	1000	166.6	80	120	Fail
24	Mg	45	########	45430853	0.32	113768.3	1000	394.9	80	120	Fail
27	Al	45	4731.720	965707	0.73	20.0	1000	471.2	80	120	Fail
39	K	45	16492.464	7684410	1.48	11560.2	1000	493.2	80	120	Fail
44	Ca	45	########	12831156	0.66	459416.0	1000	357.3	80	120	Fail
47	Ti	45	211.988	35651	1.40	0.3	200	105.8	80	120	
51	V	45	195.123	1030469	0.92	0.8	200	97.2	80	120	
52	Cr	45	198.245	1221617	0.57	8.0	200	95.1	80	120	
55	Mn	45	184.927	778928	0.93	0.5	200	92.2	80	120	
56	Fe	45	4787.754	28809410	2.05	5.6	1000	478.2	80	120	Fail
59	Co	72	193.912	1754389	0.98	0.4	200	96.7	80	120	
60	Ni	72	182.464	444115	0.49	1.6	200	90.4	80	120	
63	Cu	72	194.052	1288796	0.43	15.4	200	89.3	80	120	
66	Zn	72	267.413	381662	0.55	97.8	200	84.8	80	120	
75	As	72	200.158	220445	0.51	8.1	200	96.0	80	120	
78	Se	72	223.411	18366	0.68	24.0	200	99.7	80	120	
88	Sr	115	7436.077	43778627	2.20	7066.1	200	185.0	80	120	Fail
95	Mo	115	215.418	838585	0.29	1.0	200	107.2	80	120	
107	Ag	115	192.810	2338229	2.22	0.2	200	96.3	80	120	
111	Cd	115	187.116	377096	1.13	0.2	200	93.5	80	120	
118	Sn	115	211.593	967922	0.51	0.4	200	105.6	80	120	
121	Sb	115	199.344	1461317	0.22	0.3	200	99.5	80	120	
137	Ba	115	224.944	538599	0.58	27.6	200	98.7	80	120	
205	Tl	209	194.221	5258210	0.90	0.2	200	97.0	80	120	
208	Pb	209	200.350	7186006	0.67	3.6	200	98.4	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1430885	1.29	1522183	94.00	70	120	
72	Ge	996904	0.35	1074520	92.78	70	120	
115	In	10192290	1.31	11514007	88.52	70	120	
209	Bi	19356463	1.00	22396997	86.42	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/29/2014 13:51	Sample Name	CCV6-140529
Data Batch	140529.b	Comment	CCV ICPMS_TW
Data File Name	139_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	187.032	10835	1.82	200	93.5	90	110	
11	B	45	177.997	8633	3.87	200	89.0	90	110	Fail
23	Na	45	4972.265	3876609	1.79	5000	99.4	90	110	
24	Mg	45	4970.537	2034497	0.82	5000	99.4	90	110	
27	Al	45	5088.190	1100967	0.99	5000	101.8	90	110	
39	K	45	5155.770	2592048	0.96	5000	103.1	90	110	
44	Ca	45	5442.235	160166	0.88	5000	108.8	90	110	
47	Ti	45	214.137	38178	0.60	200	107.1	90	110	
51	V	45	196.673	1101118	0.14	200	98.3	90	110	
52	Cr	45	198.532	1297032	1.10	200	99.3	90	110	
55	Mn	45	194.072	866675	0.95	200	97.0	90	110	
56	Fe	45	4901.165	31269945	0.89	5000	98.0	90	110	
59	Co	72	208.528	2002724	2.25	200	104.3	90	110	
60	Ni	72	202.556	523124	0.60	200	101.3	90	110	
63	Cu	72	201.197	1418374	0.87	200	100.6	90	110	
66	Zn	72	197.584	299430	0.76	200	98.8	90	110	
75	As	72	197.476	230866	0.80	200	98.7	90	110	
78	Se	72	209.662	18300	1.12	200	104.8	90	110	
88	Sr	115	218.998	1423810	0.93	200	109.5	90	110	
95	Mo	115	209.056	898743	0.14	200	104.5	90	110	
107	Ag	115	200.061	2679096	1.78	200	100.0	90	110	
111	Cd	115	198.606	441931	1.17	200	99.3	90	110	
118	Sn	115	209.305	1057405	0.54	200	104.7	90	110	
121	Sb	115	202.732	1641190	0.47	200	101.4	90	110	
137	Ba	115	200.928	531300	0.51	200	100.5	90	110	
205	Tl	209	198.769	6175323	2.10	200	99.4	90	110	
208	Pb	209	202.469	8332857	0.58	200	101.2	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1516913	0.37	1522183	99.65	70	120	
72	Ge	1058184	0.55	1074520	98.48	70	120	
115	In	11256169	1.38	11514007	97.76	70	120	
209	Bi	22212699	1.76	22396997	99.18	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/29/2014 13:55	Sample Name	LCVL6-140529
Data Batch	140529.b	Comment	LCVLICPMS_TW
Data File Name	141LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.987	57	8.77	1	98.7	70	130	
11	B	45	-50.207	2454	2.79	20	-251.0	70	130	Fail
23	Na	45	164.223	191068	1.37	100	164.2	70	130	Fail
24	Mg	45	109.822	45101	1.30	100	109.8	70	130	
27	Al	45	92.297	19971	1.79	100	92.3	70	130	
39	K	45	107.577	117175	0.56	100	107.6	70	130	
44	Ca	45	119.821	3737	3.17	100	119.8	70	130	
47	Ti	45	4.855	863	11.13	5	97.1	70	130	
51	V	45	1.253	9193	2.71	1	125.3	70	130	
52	Cr	45	4.817	33978	1.90	5	96.3	70	130	
55	Mn	45	4.752	21280	1.71	5	95.0	70	130	
56	Fe	45	88.191	572254	0.48	100	88.2	70	130	
59	Co	72	4.909	47728	0.73	5	98.2	70	130	
60	Ni	72	4.476	13495	1.77	5	89.5	70	130	
63	Cu	72	4.986	36787	1.59	5	99.7	70	130	
66	Zn	72	4.567	7336	2.36	5	91.3	70	130	
75	As	72	4.696	5753	2.58	5	93.9	70	130	
78	Se	72	5.121	541	1.27	5	102.4	70	130	
88	Sr	115	5.107	33782	0.83	5	102.1	70	130	
95	Mo	115	4.682	20469	2.40	5	93.6	70	130	
107	Ag	115	1.767	24034	1.64	2	88.4	70	130	
111	Cd	115	0.947	2191	6.12	1	94.7	70	130	
118	Sn	115	4.833	25645	1.31	5	96.7	70	130	
121	Sb	115	1.742	14590	3.18	2	87.1	70	130	
137	Ba	115	4.620	12457	4.13	5	92.4	70	130	
205	Tl	209	0.962	29992	2.26	1	96.2	70	130	
208	Pb	209	0.972	43541	0.58	1	97.2	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1495994	1.56	1522183	98.28	70	120	
72	Ge	1065610	0.18	1074520	99.17	70	120	
115	In	11418625	1.82	11514007	99.17	70	120	
209	Bi	21868277	1.88	22396997	97.64	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/29/2014 13:57	Sample Name	CCB6-140529
Data Batch	140529.b	Comment	CCB ICPMS_TW
Data File Name	142_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.028	2	65.5	0.4	0.3	
11	B	45	-75.077	1839	4.3	10	10	
23	Na	45	43.353	102269	2.1	50	100	
24	Mg	45	0.102	853	5.9	50	100	
27	Al	45	-0.714	132	16.8	50	10	
39	K	45	-5.256	64255	1.1	50	100	
44	Ca	45	4.102	394	2.7	50	100	
47	Ti	45	-0.057	1	173.2	4	3	
51	V	45	0.266	3846	3.1	4	3	
52	Cr	45	-0.186	1862	1.6	2	2	
55	Mn	45	-0.004	357	10.3	2	3	
56	Fe	45	-1.041	11475	0.5	50	50	
59	Co	72	-0.006	198	2.6	2	3	
60	Ni	72	-0.510	570	4.6	2	3	
63	Cu	72	0.025	1600	6.4	2	2	
66	Zn	72	0.008	384	1.3	4	2	
75	As	72	0.021	254	7.3	2	2	
78	Se	72	0.213	111	12.6	1	2	
88	Sr	115	0.152	1076	5.0	4	3	
95	Mo	115	0.004	70	29.7	2	2	
107	Ag	115	0.020	290	21.5	0.4	1	
111	Cd	115	0.007	66	30.6	0.4	0.3	
118	Sn	115	-0.035	696	9.2	4	3	
121	Sb	115	-0.002	269	15.7	2	0.8	
137	Ba	115	0.021	114	18.7	2	3	
205	Tl	209	0.010	882	3.3	2	0.5	
208	Pb	209	-0.013	3647	3.4	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1533580	0.87	1522183	100.75	70	120	
72	Ge	1060530	1.03	1074520	98.70	70	120	
115	In	11120856	0.79	11514007	96.59	70	120	
209	Bi	21905620	1.02	22396997	97.81	70	120	

Sample Report

Date Acquired	5/29/14 1:59 PM	Sample Name	1405261-04A
Data Batch	140529.b	Comment	SAMP6020A_W
Data File Name	143_WS.d	Dilution	10

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.018	2	91.65	2000	
11	B	45	-45.049	2601	4.22	2000	
23	Na	45	10889.992	8325521	1.25	25000	>RL
24	Mg	45	1103.326	447670	0.22	25000	>RL
27	Al	45	2.668	854	11.65	10000	
39	K	45	414.491	266478	0.07	25000	>RL
44	Ca	45	10871.327	316437	0.25	10000	OUTCAL
47	Ti	45	-0.006	10	33.30	2000	
51	V	45	0.455	4813	3.40	2000	
52	Cr	45	-0.197	1750	8.26	2000	
55	Mn	45	1.115	5290	3.76	2000	
56	Fe	45	0.602	21613	2.15	10000	
59	Co	72	0.015	407	9.13	2000	
60	Ni	72	-0.328	1054	8.63	2000	
63	Cu	72	0.884	7752	1.77	2000	
66	Zn	72	0.593	1288	8.71	2000	
75	As	72	0.591	931	6.25	2000	
78	Se	72	15.673	1474	1.00	2000	>RL
88	Sr	115	40.609	268813	0.77	2000	>RL
95	Mo	115	6.970	30554	1.14	2000	>RL
107	Ag	115	0.015	230	14.49	500	
111	Cd	115	-0.007	37	39.63	2000	
118	Sn	115	-0.017	812	9.42	2000	
121	Sb	115	220.940	1820549	2.53	500	>RL
137	Ba	115	5.699	15398	2.80	2000	J
205	Tl	209	0.004	699	12.64	2000	
208	Pb	209	-0.008	3858	3.60	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1501910	1.85	1522183	98.67	70	120	
72	Ge	1073292	0.24	1074520	99.89	70	120	
115	In	11455441	0.43	11514007	99.49	70	120	
209	Bi	21999029	0.46	22396997	98.22	70	120	

Sample Report

Date Acquired	5/29/14 2:01 PM	Sample Name	1405261-05A
Data Batch	140529.b	Comment	SAMP6020A_W
Data File Name	144_WS.d	Dilution	10

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.012	1	43.30	2000	
11	B	45	-70.128	1899	5.19	2000	
23	Na	45	18843.386	14114489	2.10	25000	>RL
24	Mg	45	2080.754	829473	0.55	25000	>RL
27	Al	45	2.028	704	4.76	10000	
39	K	45	588.811	345139	0.61	25000	>RL
44	Ca	45	10480.526	299983	0.93	10000	OUTCAL
47	Ti	45	-0.005	10	100.00	2000	
51	V	45	0.593	5487	4.00	2000	
52	Cr	45	-0.183	1816	4.41	2000	
55	Mn	45	0.115	858	16.10	2000	
56	Fe	45	-0.302	15631	2.57	10000	
59	Co	72	0.274	2894	5.86	2000	
60	Ni	72	1.490	5729	4.24	2000	
63	Cu	72	3.498	26104	0.92	2000	J
66	Zn	72	10.392	16133	0.84	2000	>RL
75	As	72	9.354	11175	0.83	2000	>RL
78	Se	72	4.251	462	5.62	2000	J
88	Sr	115	47.021	307865	0.43	2000	>RL
95	Mo	115	10.974	47545	1.13	2000	>RL
107	Ag	115	0.014	208	22.48	500	
111	Cd	115	0.000	51	33.46	2000	
118	Sn	115	-0.084	461	19.25	2000	
121	Sb	115	98.485	802813	1.12	500	>RL
137	Ba	115	9.672	25805	0.49	2000	J
205	Tl	209	0.012	938	4.83	2000	
208	Pb	209	0.021	5025	3.97	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1476646	1.37	1522183	97.01	70	120	
72	Ge	1060216	0.04	1074520	98.67	70	120	
115	In	11331886	1.17	11514007	98.42	70	120	
209	Bi	21898885	1.89	22396997	97.78	70	120	

Sample Report

Date Acquired	5/29/14 2:03 PM	Sample Name	1405261-12A
Data Batch	140529.b	Comment	SAMP6020A_W
Data File Name	145_WS.d	Dilution	10

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.000	1	173.21	2000	
11	B	45	-73.579	1852	7.13	2000	
23	Na	45	18191.118	13964124	1.53	25000	>RL
24	Mg	45	1994.497	814638	1.43	25000	>RL
27	Al	45	2.274	776	11.29	10000	
39	K	45	566.127	342531	0.93	25000	>RL
44	Ca	45	10008.280	293513	1.80	10000	OUTCAL
47	Ti	45	0.082	26	32.81	2000	
51	V	45	0.551	5383	2.27	2000	
52	Cr	45	-0.147	2087	11.84	2000	
55	Mn	45	0.089	766	5.44	2000	
56	Fe	45	0.260	19479	30.10	10000	
59	Co	72	0.264	2818	3.11	2000	
60	Ni	72	1.477	5725	2.76	2000	
63	Cu	72	3.798	28375	0.54	2000	J
66	Zn	72	10.338	16138	3.51	2000	>RL
75	As	72	9.182	11032	0.44	2000	>RL
78	Se	72	4.156	457	8.44	2000	J
88	Sr	115	46.768	301905	0.26	2000	>RL
95	Mo	115	11.071	47297	0.86	2000	>RL
107	Ag	115	0.015	221	6.28	500	
111	Cd	115	0.016	87	3.85	2000	
118	Sn	115	-0.036	694	6.12	2000	
121	Sb	115	98.543	792027	0.33	500	>RL
137	Ba	115	9.612	25285	2.00	2000	J
205	Tl	209	0.008	830	7.31	2000	
208	Pb	209	0.014	4766	2.69	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1513186	2.78	1522183	99.41	70	120	
72	Ge	1065967	0.44	1074520	99.20	70	120	
115	In	11172105	0.51	11514007	97.03	70	120	
209	Bi	21951498	0.52	22396997	98.01	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/29/2014 14:05	Sample Name	CCV7-140529
Data Batch	140529.b	Comment	CCV ICPMS_TW
Data File Name	146_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	195.239	10959	1.98	200	97.6	90	110	
11	B	45	156.703	7811	2.02	200	78.4	90	110	Fail
23	Na	45	4901.225	3702831	2.97	5000	98.0	90	110	
24	Mg	45	5032.380	1995914	1.51	5000	100.6	90	110	
27	Al	45	5187.108	1087422	0.37	5000	103.7	90	110	
39	K	45	5190.284	2528131	2.67	5000	103.8	90	110	
44	Ca	45	5415.728	154432	0.51	5000	108.3	90	110	
47	Ti	45	215.069	37152	0.65	200	107.5	90	110	
51	V	45	199.064	1079832	0.42	200	99.5	90	110	
52	Cr	45	201.877	1277849	0.75	200	100.9	90	110	
55	Mn	45	196.851	851762	0.40	200	98.4	90	110	
56	Fe	45	5035.731	31130282	1.35	5000	100.7	90	110	
59	Co	72	205.730	1954747	1.61	200	102.9	90	110	
60	Ni	72	201.112	513957	0.50	200	100.6	90	110	
63	Cu	72	199.166	1389256	0.15	200	99.6	90	110	
66	Zn	72	195.925	293797	0.95	200	98.0	90	110	
75	As	72	193.582	223931	0.30	200	96.8	90	110	
78	Se	72	206.661	17851	2.05	200	103.3	90	110	
88	Sr	115	217.346	1386820	0.48	200	108.7	90	110	
95	Mo	115	210.538	888263	0.12	200	105.3	90	110	
107	Ag	115	202.158	2656949	1.54	200	101.1	90	110	
111	Cd	115	199.676	436105	0.68	200	99.8	90	110	
118	Sn	115	208.715	1034720	0.50	200	104.4	90	110	
121	Sb	115	199.812	1587913	4.22	200	99.9	90	110	
137	Ba	115	200.788	521023	0.60	200	100.4	90	110	
205	Tl	209	198.949	6049867	0.93	200	99.5	90	110	
208	Pb	209	201.859	8131661	0.80	200	100.9	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1469828	1.06	1522183	96.56	70	120	
72	Ge	1047146	1.28	1074520	97.45	70	120	
115	In	11046259	1.28	11514007	95.94	70	120	
209	Bi	21741516	1.05	22396997	97.07	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/29/2014 14:09	Sample Name	LCVL7-140529
Data Batch	140529.b	Comment	LCVLICPMS_TW
Data File Name	148LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	1.103	63	20.52	1	110.3	70	130	
11	B	45	-63.002	2079	10.02	20	-315.0	70	130	Fail
23	Na	45	123.920	157983	0.61	100	123.9	70	130	
24	Mg	45	106.428	43012	0.88	100	106.4	70	130	
27	Al	45	101.008	21468	1.30	100	101.0	70	130	
39	K	45	104.290	113697	0.70	100	104.3	70	130	
44	Ca	45	104.029	3226	5.84	100	104.0	70	130	
47	Ti	45	5.214	912	1.28	5	104.3	70	130	
51	V	45	1.203	8770	2.62	1	120.3	70	130	
52	Cr	45	4.706	32714	0.63	5	94.1	70	130	
55	Mn	45	4.741	20881	1.78	5	94.8	70	130	
56	Fe	45	87.993	561668	0.40	100	88.0	70	130	
59	Co	72	4.919	46961	0.58	5	98.4	70	130	
60	Ni	72	4.422	13112	0.95	5	88.4	70	130	
63	Cu	72	4.864	35274	1.46	5	97.3	70	130	
66	Zn	72	4.607	7263	1.96	5	92.1	70	130	
75	As	72	4.640	5584	1.10	5	92.8	70	130	
78	Se	72	5.136	532	2.42	5	102.7	70	130	
88	Sr	115	4.956	32165	3.40	5	99.1	70	130	
95	Mo	115	4.529	19428	0.99	5	90.6	70	130	
107	Ag	115	1.774	23662	1.74	2	88.7	70	130	
111	Cd	115	0.958	2172	4.34	1	95.8	70	130	
118	Sn	115	4.862	25292	1.31	5	97.2	70	130	
121	Sb	115	1.699	13962	0.88	2	84.9	70	130	
137	Ba	115	4.696	12414	2.00	5	93.9	70	130	
205	Tl	209	0.918	28902	0.86	1	91.8	70	130	
208	Pb	209	0.926	42054	1.06	1	92.6	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1471304	0.72	1522183	96.66	70	120	
72	Ge	1046327	0.21	1074520	97.38	70	120	
115	In	11198032	1.17	11514007	97.26	70	120	
209	Bi	22056196	0.84	22396997	98.48	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/29/2014 14:11	Sample Name	CCB7-140529
Data Batch	140529.b	Comment	CCB ICPMS_TW
Data File Name	149_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.013	1	86.6	0.4	0.3	
11	B	45	-81.904	1577	6.4	10	10	
23	Na	45	14.983	76666	1.8	50	100	
24	Mg	45	-0.858	434	24.1	50	100	
27	Al	45	-0.666	137	23.3	50	10	
39	K	45	-2.575	62609	0.9	50	100	
44	Ca	45	-0.130	257	7.9	50	100	
47	Ti	45	-0.050	2	173.2	4	3	
51	V	45	0.243	3552	1.8	4	3	
52	Cr	45	-0.159	1948	6.5	2	2	
55	Mn	45	-0.005	333	19.9	2	3	
56	Fe	45	-1.009	11151	2.1	50	50	
59	Co	72	-0.007	190	6.1	2	3	
60	Ni	72	-0.525	527	11.7	2	3	
63	Cu	72	-0.011	1329	9.2	2	2	
66	Zn	72	-0.014	348	17.0	4	2	
75	As	72	0.013	242	3.3	2	2	
78	Se	72	0.281	116	15.0	1	2	
88	Sr	115	0.071	561	8.1	4	3	
95	Mo	115	0.000	54	53.5	2	2	
107	Ag	115	0.018	256	20.8	0.4	1	
111	Cd	115	-0.002	47	14.3	0.4	0.3	
118	Sn	115	-0.037	690	9.7	4	3	
121	Sb	115	0.000	279	17.5	2	0.8	
137	Ba	115	0.003	68	15.0	2	3	
205	Tl	209	0.007	804	9.1	2	0.5	
208	Pb	209	-0.020	3408	4.9	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1464563	1.95	1522183	96.21	70	120	
72	Ge	1048328	0.09	1074520	97.56	70	120	
115	In	11179205	2.12	11514007	97.09	70	120	
209	Bi	22075435	0.77	22396997	98.56	70	120	

Method Blank Report

Date Acquired	5/29/14 2:49 PM	Sample Name	MB-63851
Data Batch	140529.b	Comment	MBLK6020A_W
Data File Name	150_LRB.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.023	2	50.00		
11	B	45	-93.937	1303	4.67		
23	Na	45	120.038	159049	3.07		Fail
24	Mg	45	31.524	13628	5.64		
27	Al	45	3.639	1067	3.80		
39	K	45	5.027	68220	0.58		
44	Ca	45	126.935	3977	3.25		Fail
47	Ti	45	0.075	24	31.49		
51	V	45	0.213	3493	3.57		
52	Cr	45	-0.160	1999	4.29		
55	Mn	45	0.055	612	11.64		
56	Fe	45	1.343	26415	3.08		
59	Co	72	0.006	312	12.87		
60	Ni	72	-0.467	681	2.46		
63	Cu	72	0.119	2262	3.56		
66	Zn	72	1.959	3343	2.69		
75	As	72	0.043	278	4.76		
78	Se	72	0.146	105	16.78		
88	Sr	115	1.543	10190	6.11		
95	Mo	115	0.016	123	11.78		
107	Ag	115	0.023	337	7.86		
111	Cd	115	0.012	78	28.54		
118	Sn	115	-0.059	586	5.73		
121	Sb	115	0.007	342	11.29		
137	Ba	115	0.062	226	5.59		
205	Tl	209	0.007	801	11.87		
208	Pb	209	0.016	4890	6.52		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1508674	0.62	1522183	99.11	70	120	
72	Ge	1060211	0.75	1074520	98.67	70	120	
115	In	11316864	1.77	11514007	98.29	70	120	
209	Bi	22249986	0.52	22396997	99.34	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/29/2014 14:51	Sample Name	LCS-63851
Data Batch	140529.b	Comment	LCS 6020A_W
Data File Name	151_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	190.076	10800	1.85	200	190.1	80	120	
11	B	45	115.311	6808	5.67	200	115.3	80	120	
23	Na	45	4959.762	3793688	0.96	5000	4959.8	80	120	
24	Mg	45	5127.668	2058876	1.56	5000	5127.7	80	120	
27	Al	45	4934.842	1047789	0.54	5000	4934.8	80	120	
39	K	45	5086.283	2510284	0.71	5000	5086.3	80	120	
44	Ca	45	4996.777	144350	0.90	5000	4996.8	80	120	
47	Ti	45	211.127	36941	0.63	200	211.1	80	120	
51	V	45	194.810	1070180	0.34	200	194.8	80	120	
52	Cr	45	196.939	1262587	0.32	200	196.9	80	120	
55	Mn	45	192.604	844056	0.54	200	192.6	80	120	
56	Fe	45	4902.954	30699383	0.61	5000	4903.0	80	120	
59	Co	72	203.593	1920877	1.22	200	203.6	80	120	
60	Ni	72	198.753	504304	0.37	200	198.8	80	120	
63	Cu	72	196.693	1362235	0.52	200	196.7	80	120	
66	Zn	72	189.558	282235	1.09	200	189.6	80	120	
75	As	72	194.456	223335	0.24	200	194.5	80	120	
78	Se	72	204.831	17566	0.34	200	204.8	80	120	
88	Sr	115	213.187	1356605	0.51	200	213.2	80	120	
95	Mo	115	208.472	877150	0.21	200	208.5	80	120	
107	Ag	115	195.500	2563074	1.25	200	195.5	80	120	
111	Cd	115	196.571	428172	1.05	200	196.6	80	120	
118	Sn	115	207.152	1024197	0.90	200	207.2	80	120	
121	Sb	115	199.619	1582093	4.96	200	199.6	80	120	
137	Ba	115	197.188	510324	0.31	200	197.2	80	120	
205	Tl	209	193.433	5885817	0.07	200	193.4	80	120	
208	Pb	209	197.978	7981183	1.21	200	198.0	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1489590	3.38	1522183	97.86	70	120	
72	Ge	1039574	0.63	1074520	96.75	70	120	
115	In	11017112	1.56	11514007	95.68	70	120	
209	Bi	21755145	0.42	22396997	97.13	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/29/2014 14:53	Sample Name	LCSD-63851
Data Batch	140529.b	Comment	LCSD6020A_W
Data File Name	152_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	191.187	10721	1.80	200	191.2	80	120	
11	B	45	113.360	6667	2.71	200	113.4	80	120	
23	Na	45	5050.971	3808250	2.03	5000	5051.0	80	120	
24	Mg	45	5013.253	1985968	0.82	5000	5013.3	80	120	
27	Al	45	4904.045	1026750	0.30	5000	4904.0	80	120	
39	K	45	5191.761	2526733	3.00	5000	5191.8	80	120	
44	Ca	45	4937.302	140639	1.24	5000	4937.3	80	120	
47	Ti	45	212.171	36608	1.16	200	212.2	80	120	
51	V	45	193.877	1050375	0.72	200	193.9	80	120	
52	Cr	45	195.970	1238936	0.67	200	196.0	80	120	
55	Mn	45	193.632	836734	0.16	200	193.6	80	120	
56	Fe	45	4933.738	30459488	0.64	5000	4933.7	80	120	
59	Co	72	207.103	1935140	0.85	200	207.1	80	120	
60	Ni	72	199.962	502485	0.30	200	200.0	80	120	
63	Cu	72	199.728	1369925	0.69	200	199.7	80	120	
66	Zn	72	190.899	281496	0.64	200	190.9	80	120	
75	As	72	193.974	220645	0.50	200	194.0	80	120	
78	Se	72	205.020	17414	1.96	200	205.0	80	120	
88	Sr	115	213.652	1338641	0.48	200	213.7	80	120	
95	Mo	115	208.634	864318	0.59	200	208.6	80	120	
107	Ag	115	199.917	2580466	3.29	200	199.9	80	120	
111	Cd	115	196.861	422162	0.74	200	196.9	80	120	
118	Sn	115	208.423	1014655	0.54	200	208.4	80	120	
121	Sb	115	199.646	1557202	2.95	200	199.6	80	120	
137	Ba	115	199.138	507427	0.62	200	199.1	80	120	
205	Tl	209	194.712	5878489	1.07	200	194.7	80	120	
208	Pb	209	199.905	7995939	1.36	200	199.9	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1468733	2.96	1522183	96.49	70	120	
72	Ge	1029574	0.22	1074520	95.82	70	120	
115	In	10847448	1.40	11514007	94.21	70	120	
209	Bi	21584689	0.57	22396997	96.37	70	120	

Dilution Sample (Dil) Report

Date Acquired	5/29/2014 14:58	Sample Name	1405265-16A SD
Data Batch	140529.b	Comment	SD 6020A_W
Data File Name	155_SD.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
9	Be	45	0.100	6	57.74	0.2	234.6	110	90	
11	B	45	143.621	7129	3.95	1012.3	70.9	110	90	
23	Na	45	59983.777	42545061	1.29	286658.0	104.6	110	90	Good
24	Mg	45	14280.740	5401792	1.44	68041.9	104.9	110	90	Good
27	Al	45	7.457	1756	4.27	25.7	145.1	110	90	
39	K	45	1976.824	956510	0.84	9554.1	103.5	110	90	Good
44	Ca	45	56683.195	1540109	1.85	270476.1	104.8	110	90	Good
47	Ti	45	0.146	34	65.86	0.3	214.7	110	90	
51	V	45	0.389	4154	4.42	0.8	254.2	110	90	
52	Cr	45	0.205	4063	2.38	1.3	78.9	110	90	
55	Mn	45	0.214	1223	4.46	0.8	139.4	110	90	
56	Fe	45	3.535	37457	4.45	12.6	140.8	110	90	
59	Co	72	0.200	2085	3.38	0.7	141.5	110	90	
60	Ni	72	0.753	3649	2.87	5.1	74.2	110	90	
63	Cu	72	1.277	9944	1.81	5.8	109.3	110	90	Good
66	Zn	72	73.140	106112	1.54	354.6	103.1	110	90	Good
75	As	72	1.606	2010	2.12	8.0	100.8	110	90	Good
78	Se	72	3.492	378	10.75	16.1	108.7	110	90	Good
88	Sr	115	810.646	5019113	1.13	4271.0	94.9	110	90	Good
95	Mo	115	0.342	1453	11.39	1.4	121.8	110	90	
107	Ag	115	0.134	1737	9.51	0.2	276.5	110	90	
111	Cd	115	0.122	308	16.65	0.2	252.7	110	90	
118	Sn	115	0.040	1031	13.34	0.2	80.1	110	90	
121	Sb	115	0.116	1162	3.47	0.3	226.7	110	90	
137	Ba	115	5.200	13149	3.11	26.5	98.0	110	90	Good
205	Tl	209	0.125	4230	8.85	0.2	282.8	110	90	
208	Pb	209	0.559	25752	2.02	2.6	106.7	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1402607	1.64	1522183	92.14	70	120	
72	Ge	1010913	0.61	1074520	94.08	70	120	
115	In	10719144	1.66	11514007	93.10	70	120	
209	Bi	20993539	1.59	22396997	93.73	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	5/29/2014 15:18	Sample Name	1405265-16A PDS
Data Batch	140529.b	Comment	PDS 6020A_W
Data File Name	165_PDS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	177.936	9767	0.81	0.2	200	88.9	75	125	
11	B	45	1124.235	32328	0.53	1012.3	200	56.0	75	125	Fail
23	Na	45	########	195764494	2.60	286658.0	5000	-341.2	75	125	Fail
24	Mg	45	68170.206	26431658	1.22	68041.9	5000	2.6	75	125	Fail
27	Al	45	4567.831	936548	0.59	25.7	5000	90.8	75	125	
39	K	45	14254.878	6679530	1.67	9554.1	5000	94.0	75	125	
44	Ca	45	########	7296066	1.66	270476.1	5000	-168.7	75	125	Fail
47	Ti	45	203.255	34339	1.36	0.3	200	101.5	75	125	
51	V	45	190.477	1010588	0.51	0.8	200	94.9	75	125	
52	Cr	45	189.791	1175010	0.51	1.3	200	94.2	75	125	
55	Mn	45	183.077	774715	0.24	0.8	200	91.2	75	125	
56	Fe	45	4340.599	26244666	1.03	12.6	5000	86.6	75	125	
59	Co	72	195.635	1768137	1.58	0.7	200	97.5	75	125	
60	Ni	72	187.570	456017	0.81	5.1	200	91.2	75	125	
63	Cu	72	183.514	1217614	0.74	5.8	200	88.8	75	125	
66	Zn	72	503.442	717485	0.34	354.6	200	74.4	75	125	Fail
75	As	72	196.172	215838	0.84	8.0	200	94.1	75	125	
78	Se	72	212.113	17424	1.58	16.1	200	98.0	75	125	
88	Sr	115	4292.644	25347486	0.71	4271.0	200	10.8	75	125	Fail
95	Mo	115	195.460	763234	0.58	1.4	200	97.0	75	125	
107	Ag	115	108.325	1317869	0.47	0.2	200	54.0	75	125	Fail
111	Cd	115	189.890	383843	0.33	0.2	200	94.8	75	125	
118	Sn	115	205.351	942280	0.59	0.2	200	102.6	75	125	
121	Sb	115	191.492	1408083	0.34	0.3	200	95.6	75	125	
137	Ba	115	223.387	536549	1.04	26.5	200	98.4	75	125	
205	Tl	209	195.510	5315115	0.80	0.2	200	97.6	75	125	
208	Pb	209	199.597	7189501	0.94	2.6	200	98.5	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1437394	0.85	1522183	94.43	70	120	
72	Ge	995872	0.31	1074520	92.68	70	120	
115	In	10223222	0.82	11514007	88.79	70	120	
209	Bi	19438088	1.03	22396997	86.79	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/29/2014 15:19	Sample Name	1405265-16AMS
Data Batch	140529.b	Comment	MS 6020A_W
Data File Name	166_MSS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	172.011	9258	0.41	0.2	200	85.9	80	120	
11	B	45	1164.215	32702	0.96	1012.3	200	76.0	80	120	Fail
23	Na	45	########	197694494	0.98	286658.0	1000	-889.4	80	120	Fail
24	Mg	45	69732.404	26503131	1.71	68041.9	1000	169.1	80	120	Fail
27	Al	45	4753.376	955522	0.20	25.7	1000	472.8	80	120	Fail
39	K	45	14371.816	6603550	2.12	9554.1	1000	481.8	80	120	Fail
44	Ca	45	########	7492000	0.09	270476.1	1000	398.3	80	120	Fail
47	Ti	45	210.187	34809	0.96	0.3	200	104.9	80	120	
51	V	45	193.363	1005829	0.19	0.8	200	96.3	80	120	
52	Cr	45	187.094	1135709	0.29	1.3	200	92.9	80	120	
55	Mn	45	182.753	758275	0.46	0.8	200	91.0	80	120	
56	Fe	45	4623.039	27413176	2.22	12.6	1000	461.0	80	120	Fail
59	Co	72	190.348	1695388	2.72	0.7	200	94.8	80	120	
60	Ni	72	184.619	442378	0.27	5.1	200	89.8	80	120	
63	Cu	72	184.103	1203851	0.08	5.8	200	89.1	80	120	
66	Zn	72	511.082	717832	1.17	354.6	200	78.2	80	120	Fail
75	As	72	198.868	215631	0.26	8.0	200	95.4	80	120	
78	Se	72	212.229	17180	1.10	16.1	200	98.1	80	120	
88	Sr	115	4415.309	25889755	0.75	4271.0	200	72.1	80	120	Fail
95	Mo	115	211.374	819508	0.42	1.4	200	105.0	80	120	
107	Ag	115	188.214	2273168	1.60	0.2	200	94.0	80	120	
111	Cd	115	187.247	375803	0.43	0.2	200	93.5	80	120	
118	Sn	115	209.030	952465	1.09	0.2	200	104.4	80	120	
121	Sb	115	196.780	1436834	0.79	0.3	200	98.3	80	120	
137	Ba	115	223.553	533125	0.57	26.5	200	98.5	80	120	
205	Tl	209	194.465	5211394	1.27	0.2	200	97.1	80	120	
208	Pb	209	200.621	7123092	0.90	2.6	200	99.0	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1410182	3.09	1522183	92.64	70	120	
72	Ge	981467	0.49	1074520	91.34	70	120	
115	In	10152317	1.77	11514007	88.17	70	120	
209	Bi	19159806	0.24	22396997	85.55	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/29/2014 15:21	Sample Name	1405265-16AMSD
Data Batch	140529.b	Comment	MSD 6020A_W
Data File Name	167_MSS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	176.169	9327	0.75	0.2	200	88.0	80	120	
11	B	45	1198.436	33006	1.10	1012.3	200	93.1	80	120	
23	Na	45	########	198696210	1.04	286658.0	1000	-293.2	80	120	Fail
24	Mg	45	71072.159	26579535	1.74	68041.9	1000	303.0	80	120	Fail
27	Al	45	4743.309	938078	0.75	25.7	1000	471.8	80	120	Fail
39	K	45	14436.253	6524228	0.81	9554.1	1000	488.2	80	120	Fail
44	Ca	45	########	7322984	0.50	270476.1	1000	221.6	80	120	Fail
47	Ti	45	209.014	34062	0.45	0.3	200	104.3	80	120	
51	V	45	193.900	992296	0.12	0.8	200	96.6	80	120	
52	Cr	45	188.895	1127950	0.80	1.3	200	93.8	80	120	
55	Mn	45	184.398	752645	0.40	0.8	200	91.8	80	120	
56	Fe	45	4771.315	27828749	1.03	12.6	1000	475.9	80	120	Fail
59	Co	72	193.985	1728690	1.70	0.7	200	96.6	80	120	
60	Ni	72	182.637	437829	0.75	5.1	200	88.8	80	120	
63	Cu	72	180.545	1181120	0.28	5.8	200	87.4	80	120	
66	Zn	72	509.242	715567	0.95	354.6	200	77.3	80	120	Fail
75	As	72	197.866	214645	1.21	8.0	200	94.9	80	120	
78	Se	72	211.606	17138	1.39	16.1	200	97.8	80	120	
88	Sr	115	4329.917	25443877	0.91	4271.0	200	29.4	80	120	Fail
95	Mo	115	207.832	807498	0.90	1.4	200	103.2	80	120	
107	Ag	115	183.603	2222554	0.93	0.2	200	91.7	80	120	
111	Cd	115	182.713	367529	0.82	0.2	200	91.2	80	120	
118	Sn	115	206.586	943304	0.56	0.2	200	103.2	80	120	
121	Sb	115	193.898	1418829	0.76	0.3	200	96.8	80	120	
137	Ba	115	218.776	522853	0.27	26.5	200	96.1	80	120	
205	Tl	209	196.243	5218867	1.09	0.2	200	98.0	80	120	
208	Pb	209	197.914	6975578	0.81	2.6	200	97.6	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1387116	2.62	1522183	91.13	70	120	
72	Ge	981881	0.48	1074520	91.38	70	120	
115	In	10173329	1.28	11514007	88.36	70	120	
209	Bi	19028661	2.95	22396997	84.96	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/29/2014 15:23	Sample Name	CCV8-140529
Data Batch	140529.b	Comment	CCV ICPMS_TW
Data File Name	168_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	181.421	10202	1.47	200	90.7	90	110	
11	B	45	148.032	7598	2.79	200	74.0	90	110	Fail
23	Na	45	4721.288	3577238	1.33	5000	94.4	90	110	
24	Mg	45	4784.849	1900992	2.40	5000	95.7	90	110	
27	Al	45	4981.771	1046647	0.90	5000	99.6	90	110	
39	K	45	5043.003	2463156	0.96	5000	100.9	90	110	
44	Ca	45	5297.228	151385	1.61	5000	105.9	90	110	
47	Ti	45	204.673	35431	0.76	200	102.3	90	110	
51	V	45	191.034	1038467	0.30	200	95.5	90	110	
52	Cr	45	191.010	1211645	0.22	200	95.5	90	110	
55	Mn	45	189.006	819509	0.11	200	94.5	90	110	
56	Fe	45	4775.577	29588501	1.49	5000	95.5	90	110	
59	Co	72	204.391	1892778	2.74	200	102.2	90	110	
60	Ni	72	195.311	486415	0.25	200	97.7	90	110	
63	Cu	72	194.045	1318982	0.16	200	97.0	90	110	
66	Zn	72	191.668	280065	0.94	200	95.8	90	110	
75	As	72	191.714	216110	0.48	200	95.9	90	110	
78	Se	72	204.484	17211	1.63	200	102.2	90	110	
88	Sr	115	216.225	1351045	0.54	200	108.1	90	110	
95	Mo	115	204.200	843623	0.49	200	102.1	90	110	
107	Ag	115	196.964	2535401	0.98	200	98.5	90	110	
111	Cd	115	192.245	411184	1.14	200	96.1	90	110	
118	Sn	115	205.860	999460	0.75	200	102.9	90	110	
121	Sb	115	192.126	1494781	0.65	200	96.1	90	110	
137	Ba	115	199.461	506841	0.70	200	99.7	90	110	
205	Tl	209	194.843	5757541	0.49	200	97.4	90	110	
208	Pb	209	197.953	7749938	0.79	200	99.0	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1473121	1.93	1522183	96.78	70	120	
72	Ge	1020318	0.79	1074520	94.96	70	120	
115	In	10817125	1.25	11514007	93.95	70	120	
209	Bi	21126719	0.26	22396997	94.33	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/29/2014 15:27	Sample Name	LCVL8-140529
Data Batch	140529.b	Comment	LCVLICPMS_TW
Data File Name	170LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	1.006	56	17.72	1	100.6	70	130	
11	B	45	-62.349	2046	3.06	20	-311.7	70	130	Fail
23	Na	45	151.194	173946	0.91	100	151.2	70	130	Fail
24	Mg	45	105.569	41641	1.36	100	105.6	70	130	
27	Al	45	90.421	18786	1.20	100	90.4	70	130	
39	K	45	102.132	109966	0.68	100	102.1	70	130	
44	Ca	45	108.758	3280	1.17	100	108.8	70	130	
47	Ti	45	4.902	838	1.28	5	98.0	70	130	
51	V	45	1.164	8354	0.48	1	116.4	70	130	
52	Cr	45	4.629	31447	1.06	5	92.6	70	130	
55	Mn	45	4.583	19710	1.18	5	91.7	70	130	
56	Fe	45	84.978	529957	0.06	100	85.0	70	130	
59	Co	72	4.856	44568	0.21	5	97.1	70	130	
60	Ni	72	4.363	12459	3.54	5	87.3	70	130	
63	Cu	72	4.844	33776	1.41	5	96.9	70	130	
66	Zn	72	4.429	6727	2.40	5	88.6	70	130	
75	As	72	4.531	5247	0.41	5	90.6	70	130	
78	Se	72	5.024	503	10.09	5	100.5	70	130	
88	Sr	115	5.096	31545	3.19	5	101.9	70	130	
95	Mo	115	4.533	18554	0.56	5	90.7	70	130	
107	Ag	115	1.751	22288	2.77	2	87.6	70	130	
111	Cd	115	0.985	2129	4.56	1	98.5	70	130	
118	Sn	115	4.874	24199	1.45	5	97.5	70	130	
121	Sb	115	1.696	13305	2.46	2	84.8	70	130	
137	Ba	115	4.816	12148	1.12	5	96.3	70	130	
205	Tl	209	0.934	27729	1.32	1	93.4	70	130	
208	Pb	209	0.947	40462	0.88	1	94.7	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1436346	2.13	1522183	94.36	70	120	
72	Ge	1005904	0.62	1074520	93.61	70	120	
115	In	10686982	0.96	11514007	92.82	70	120	
209	Bi	20814401	1.61	22396997	92.93	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/29/2014 15:29	Sample Name	CCB8-140529
Data Batch	140529.b	Comment	CCB ICPMS_TW
Data File Name	171_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.001	1	86.6	0.4	0.3	
11	B	45	-81.285	1578	6.7	10	10	
23	Na	45	37.672	92441	1.3	50	100	
24	Mg	45	-0.150	708	8.8	50	100	
27	Al	45	-0.668	134	16.1	50	10	
39	K	45	-6.386	60154	0.1	50	100	
44	Ca	45	1.395	297	10.8	50	100	
47	Ti	45	-0.063	0	#DIV/0!	4	3	
51	V	45	0.233	3456	4.6	4	3	
52	Cr	45	-0.181	1790	3.4	2	2	
55	Mn	45	0.000	352	25.0	2	3	
56	Fe	45	-1.005	11060	0.5	50	50	
59	Co	72	-0.008	174	31.1	2	3	
60	Ni	72	-0.476	623	6.2	2	3	
63	Cu	72	0.025	1513	6.9	2	2	
66	Zn	72	0.015	374	8.3	4	2	
75	As	72	0.030	249	6.0	2	2	
78	Se	72	0.383	119	13.4	1	2	
88	Sr	115	0.137	934	3.7	4	3	
95	Mo	115	0.005	74	25.5	2	2	
107	Ag	115	0.021	291	8.3	0.4	1	
111	Cd	115	-0.001	46	44.7	0.4	0.3	
118	Sn	115	-0.045	620	5.7	4	3	
121	Sb	115	-0.002	254	10.0	2	0.8	
137	Ba	115	0.013	89	20.7	2	3	
205	Tl	209	0.008	790	17.7	2	0.5	
208	Pb	209	-0.019	3239	8.2	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1448592	1.68	1522183	95.17	70	120	
72	Ge	1003283	1.05	1074520	93.37	70	120	
115	In	10635182	0.04	11514007	92.37	70	120	
209	Bi	20757729	1.32	22396997	92.68	70	120	

ICP-MS4_140529B
For

DHL Work Order
1405261

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS4_140529B SOP: Metals-ICP-MS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			X
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			X
P/A Factor	Before ICAL	Increasing trend	X			
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			X
ICSAB (N/A for Method 200.8)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLS and ICSA/ICSAB is N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			X
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%			X	
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%		X		
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%		X		
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)	X			
Dilution Test (SD) - RPD	Every Batch	10		X		
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)		X		

Lab Data Review Check List

EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			x
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> 5% of highest standard	X			
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality	X			x
2. Are all corrective actions included?		X			
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?		X			

TECHNICAL DIRECTOR / QA MANAGER APPROVAL SIGNATURE AND DATE STAMP:

QA APPROVED
By John DuPont at 2:15:32 PM, 5/30/2014

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	_X_ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> MDL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag data / Case narrative
__ ICSA/ICSAB missing or out of control (± 20%)		_X_ Accept data
_X_ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

See Notes in Run Log

LCVL9-140529: Pb recovery slightly high. Samples have >40x the concentration of the LCVL. Data accepted.

Analyst: [signature] Date of Completion: 5/29/2014

Second-Level Review: [signature] Reviewer Date Stamp:

REVIEWED
By Evelyn Ferrero at 1:19:07 PM, 5/30/2014

DHL Analytical, Inc.

Run ID: ICP-MS4_140529B **Run No.:** 73426

Analytical Run Date: 5/29/2014 **InstrumentID:** ICP-MS4

Analyst: Sara Wieland

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TW	CAL	R73426	5/29/2014 9:46:00 AM		
Cal01	1	ICPMS_TW	CAL	R73426	5/29/2014 9:48:00 AM		
Cal02	1	ICPMS_TW	CAL	R73426	5/29/2014 9:50:00 AM		
Cal03	1	ICPMS_TW	CAL	R73426	5/29/2014 9:52:00 AM		
Cal04	1	ICPMS_TW	CAL	R73426	5/29/2014 9:54:00 AM		
Cal05	1	ICPMS_TW	CAL	R73426	5/29/2014 9:56:00 AM		
Cal06	1	ICPMS_TW	CAL	R73426	5/29/2014 9:58:00 AM		
Cal07	1	ICPMS_TW	CAL	R73426	5/29/2014 10:00:00 AM		
ICSA-140529	1	ICPMS_TW	ICSA	R73426	5/29/2014 10:06:00 AM		
ICSAB-140529	1	ICPMS_TW	ICSB	R73426	5/29/2014 10:07:00 AM		
ICV-140529	1	ICPMS_TW	ICV	R73426	5/29/2014 10:13:00 AM		
LCVL-140529	1	ICPMS_TW	LCVL	R73426	5/29/2014 10:17:00 AM		
ICB-140529	1	ICPMS_TW	ICB	R73426	5/29/2014 10:21:00 AM		
MB-63805	5	ICPMS_TS	MBLK	63805	5/29/2014 10:23:00 AM		
LCS-63805	5	ICPMS_TS	LCS	63805	5/29/2014 10:25:00 AM		
LCSD-63805	5	ICPMS_TS	LCSD	63805	5/29/2014 10:27:00 AM		
1405109-39A	5	ICPMS_TS	SAMP	63805	5/29/2014 10:31:00 AM		DNR: QC reference only
1405109-39A SD	25	ICPMS_TS	SD	63805	5/29/2014 10:32:00 AM		R-flag ~~Cu~~ Se; PDS passes, data accepted.
1405130-13B	5	ICPMS_TS	SAMP	63805	5/29/2014 10:50:00 AM		
1405109-39A PDS	5	ICPMS_TS	PDS	63805	5/29/2014 10:52:00 AM		S-flag ~~Ba~~, Ag; SD passes, data accepted.
1405109-39A MS	5	ICPMS_TS	MS	63805	5/29/2014 10:53:00 AM		S-flag ~~Ba~~, Fe
1405109-39A MSD	5	ICPMS_TS	MSD	63805	5/29/2014 10:55:00 AM		S-flag Fe
CCV1-140529	1	ICPMS_TW	CCV	R73426	5/29/2014 11:05:00 AM		
LCVL1-140529	1	ICPMS_TW	LCVL	R73426	5/29/2014 11:09:00 AM		
CCB1-140529	1	ICPMS_TW	CCB	R73426	5/29/2014 11:11:00 AM		
1405130-14B	5	ICPMS_TS	SAMP	63805	5/29/2014 11:13:00 AM		
1405130-15B	5	ICPMS_TS	SAMP	63805	5/29/2014 11:15:00 AM		
1405130-16B	5	ICPMS_TS	SAMP	63805	5/29/2014 11:16:00 AM		
1405130-17B	5	ICPMS_TS	SAMP	63805	5/29/2014 11:18:00 AM		
1405130-18B	5	ICPMS_TS	SAMP	63805	5/29/2014 11:20:00 AM		

1405109-39A MS: No recovery for Fe

Std ID	Std Name	Type	Exp. Date
MET-CCV-140401	ICPMS CCV 200/5000 PPB		06/30/2014
MET-H2CAL-1404	ICPMS High Cal2 2000ppb std 8		07/24/2014
MET-HCAL-14042	ICPMS High Cal 500ppb/10ppm s		07/24/2014
MET-ICV-140317	ICPMS ICV 100 ppb		06/15/2014
MET-IS-140416	INTERNAL STANDARD 1 PPM		07/15/2014
MET-L2CAL-14042	ICPMS Low Cal2 1/20ppb std 2		07/24/2014
MET-LCAL-140425	ICPMS Low Cal 10/200ppb std 3		07/24/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		07/24/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		07/24/2014
MET-MCAL-14042	ICPMS Mid Cal 250/5000ppb std		07/24/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140527-	250 PPM Naturals+Al+Fe PDS		08/25/2014
MET-PDS-140527-	10 PPM CUSTOM PDS SOLUTI		08/25/2014
MET-PDS-140527-	10 PPM Ag+Sb PDS		08/25/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		07/15/2014

Run ID: ICP-MS4_140529B **Run No.:** 73426

1405130-19B	5	ICPMS_TS	SAMP	63805	5/29/2014 11:22:00 AM		
1405130-20B	5	ICPMS_TS	SAMP	63805	5/29/2014 11:24:00 AM		
1405130-21B	5	ICPMS_TS	SAMP	63805	5/29/2014 11:26:00 AM		
1405130-22B	5	ICPMS_TS	SAMP	63805	5/29/2014 11:28:00 AM		
1405130-23B	5	ICPMS_TS	SAMP	63805	5/29/2014 11:30:00 AM		
CCV2-140529	1	ICPMS_TW	CCV	R73426	5/29/2014 11:32:00 AM		
LCVL2-140529	1	ICPMS_TW	LCVL	R73426	5/29/2014 11:35:00 AM		
CCB2-140529	1	ICPMS_TW	CCB	R73426	5/29/2014 11:37:00 AM		
1405109-39A	50	ICPMS_TS	SAMP	63805	5/29/2014 11:39:00 AM		DNR: QC reference only
1405109-39A SD	250	ICPMS_TS	SD	63805	5/29/2014 11:41:00 AM		
1405130-15B	50	ICPMS_TS	SAMP	63805	5/29/2014 11:43:00 AM		
1405130-18B	50	ICPMS_TS	SAMP	63805	5/29/2014 11:45:00 AM		
1405130-19B	50	ICPMS_TS	SAMP	63805	5/29/2014 11:47:00 AM		
1405130-20B	50	ICPMS_TS	SAMP	63805	5/29/2014 11:49:00 AM		
1405130-21B	50	ICPMS_TS	SAMP	63805	5/29/2014 11:51:00 AM		
1405130-22B	50	ICPMS_TS	SAMP	63805	5/29/2014 11:53:00 AM		
1405130-23B	50	ICPMS_TS	SAMP	63805	5/29/2014 11:55:00 AM		
1405109-39A PDS	50	ICPMS_TS	PDS	63805	5/29/2014 11:57:00 AM		
CCV3-140529	1	ICPMS_TW	CCV	R73426	5/29/2014 11:59:00 AM		
LCVL3-140529	1	ICPMS_TW	LCVL	R73426	5/29/2014 12:02:00 PM		
CCB3-140529	1	ICPMS_TW	CCB	R73426	5/29/2014 12:04:00 PM		
MB-63830	1	ICPMS_TW	MBLK	63830	5/29/2014 12:06:00 PM		
LCS-63830	1	ICPMS_TW	LCS	63830	5/29/2014 12:08:00 PM		
LCSD-63830	1	ICPMS_TW	LCSD	63830	5/29/2014 12:10:00 PM		
1405261-03A	1	ICPMS_TW	SAMP	63830	5/29/2014 12:14:00 PM		DNR: QC reference only
1405261-03A SD	5	ICPMS_TW	SD	63830	5/29/2014 12:16:00 PM		
1405261-03A PDS	1	ICPMS_TW	PDS	63830	5/29/2014 12:35:00 PM		
1405261-03A MS	1	ICPMS_TW	MS	63830	5/29/2014 12:37:00 PM		
1405261-03A MSD	1	ICPMS_TW	MSD	63830	5/29/2014 12:39:00 PM		
CCV4-140529	1	ICPMS_TW	CCV	R73426	5/29/2014 12:40:00 PM		
LCVL4-140529	1	ICPMS_TW	LCVL	R73426	5/29/2014 12:44:00 PM		
CCB4-140529	1	ICPMS_TW	CCB	R73426	5/29/2014 12:46:00 PM		
1405260-02C	1	ICPMS_TW	SAMP	63830	5/29/2014 1:05:00 PM		
CCV5-140529	1	ICPMS_TW	CCV	R73426	5/29/2014 1:07:00 PM		
LCVL5-140529	1	ICPMS_TW	LCVL	R73426	5/29/2014 1:11:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140401	ICPMS CCV 200/5000 PPB		06/30/2014
MET-H2CAL-1404	ICPMS High Cal2 2000ppb std 8		07/24/2014
MET-HCAL-14042	ICPMS High Cal 500ppb/10ppm s		07/24/2014
MET-ICV-140317	ICPMS ICV 100 ppb		06/15/2014
MET-IS-140416	INTERNAL STANDARD 1 PPM		07/15/2014
MET-L2CAL-14042	ICPMS Low Cal2 1/20ppb std 2		07/24/2014
MET-LCAL-140425	ICPMS Low Cal 10/200ppb std 3		07/24/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		07/24/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		07/24/2014
MET-MCAL-14042	ICPMS Mid Cal 250/5000ppb std		07/24/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140527-	250 PPM Naturals+Al+Fe PDS		08/25/2014
MET-PDS-140527-	10 PPM CUSTOM PDS SOLUTI		08/25/2014
MET-PDS-140527-	10 PPM Ag+Sb PDS		08/25/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		07/15/2014

DHL Analytical, Inc.

Run ID: ICP-MS4_140529B **Run No.:** 73426

CCB5-140529	1	ICPMS_TW	CCB	R73426	5/29/2014 1:13:00 PM		
MB-63798	1	ICPMS_TW	MBLK	63798	5/29/2014 1:15:00 PM		
LCS-63798	1	ICPMS_TW	LCS	63798	5/29/2014 1:21:00 PM		
LCSD-63798	1	ICPMS_TW	LCSD	63798	5/29/2014 1:23:00 PM		
1405265-04A	1	ICPMS_TW	SAMP	63798	5/29/2014 1:26:00 PM		DNR: QC reference only
1405265-04A SD	5	ICPMS_TW	SD	63798	5/29/2014 1:28:00 PM		
1405241-01A	1	ICPMS_TW	SAMP	63798	5/29/2014 1:44:00 PM		
1405265-04A PDS	1	ICPMS_TW	PDS	63798	5/29/2014 1:46:00 PM		
1405265-04A MS	1	ICPMS_TW	MS	63798	5/29/2014 1:47:00 PM		
1405265-04A MSD	1	ICPMS_TW	MSD	63798	5/29/2014 1:49:00 PM		
CCV6-140529	1	ICPMS_TW	CCV	R73426	5/29/2014 1:51:00 PM		
LCVL6-140529	1	ICPMS_TW	LCVL	R73426	5/29/2014 1:55:00 PM		
CCB6-140529	1	ICPMS_TW	CCB	R73426	5/29/2014 1:57:00 PM		
CCV8-140529	1	ICPMS_TW	CCV	R73426	5/29/2014 3:23:00 PM		
LCVL8-140529	1	ICPMS_TW	LCVL	R73426	5/29/2014 3:27:00 PM		
CCB8-140529	1	ICPMS_TW	CCB	R73426	5/29/2014 3:29:00 PM		
MB-63857	5	ICPMS_TS	MBLK	63857	5/29/2014 3:31:00 PM		
LCS-63857	5	ICPMS_TS	LCS	63857	5/29/2014 3:33:00 PM		
LCSD-63857	5	ICPMS_TS	LCSD	63857	5/29/2014 3:35:00 PM		
1405322-01A	5	ICPMS_TS	SAMP	63857	5/29/2014 3:39:00 PM		
1405322-01A SD	25	ICPMS_TS	SD	63857	5/29/2014 3:40:00 PM		
1405322-02A	5	ICPMS_TS	SAMP	63857	5/29/2014 3:42:00 PM		
1405322-03A	5	ICPMS_TS	SAMP	63857	5/29/2014 3:44:00 PM		
1405322-04A	5	ICPMS_TS	SAMP	63857	5/29/2014 3:46:00 PM		
1405322-05A	5	ICPMS_TS	SAMP	63857	5/29/2014 3:48:00 PM		
1405322-01A PDS	5	ICPMS_TS	PDS	63857	5/29/2014 3:50:00 PM		Ba fails high, SD passes for Ba.
1405322-01A MS	5	ICPMS_TS	MS	63857	5/29/2014 3:52:00 PM		S-flag Ba, Pb low, no recovery for Pb.
1405322-01A MSD	5	ICPMS_TS	MSD	63857	5/29/2014 3:54:00 PM		S-flag Ba, Pb low, no recovery for Pb.
1405322-01A	50	ICPMS_TS	SAMP	63857	5/29/2014 3:55:00 PM		
1405322-01A SD	250	ICPMS_TS	SD	63857	5/29/2014 3:57:00 PM		
1405322-01A PDS	50	ICPMS_TS	PDS	63857	5/29/2014 3:59:00 PM		
CCV9-140529	1	ICPMS_TW	CCV	R73426	5/29/2014 4:01:00 PM		
LCVL9-140529	1	ICPMS_TW	LCVL	R73426	5/29/2014 4:05:00 PM		Pb recovery slightly high. Samples have >40x the concentration of the LCVL. Data accepted.
CCB9-140529	1	ICPMS_TW	CCB	R73426	5/29/2014 4:07:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140401	ICPMS CCV 200/5000 PPB		06/30/2014
MET-H2CAL-1404	ICPMS High Cal2 2000ppb std 8		07/24/2014
MET-HCAL-14042	ICPMS High Cal 500ppb/10ppm s		07/24/2014
MET-ICV-140317	ICPMS ICV 100 ppb		06/15/2014
MET-IS-140416	INTERNAL STANDARD 1 PPM		07/15/2014
MET-L2CAL-14042	ICPMS Low Cal2 1/20ppb std 2		07/24/2014
MET-LCAL-140425	ICPMS Low Cal 10/200ppb std 3		07/24/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		07/24/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		07/24/2014
MET-MCAL-14042	ICPMS Mid Cal 250/5000ppb std		07/24/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140527-	250 PPM Naturals+Al+Fe PDS		08/25/2014
MET-PDS-140527-	10 PPM CUSTOM PDS SOLUTI		08/25/2014
MET-PDS-140527-	10 PPM Ag+Sb PDS		08/25/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		07/15/2014

Sample List

Batch Folder C:\Agilent\ICPMH\1\DATA\140529.b

Acquisition Order

#	Sequence Flow
1	Calibration Standards
2	Unknown Samples
3	Blank Samples

Calibration Standards:

#	Sample Type	Sample Name	Comment	Vial#	File Name
1	CCB		CAL ICPMS_TW	1101	
2	CCB		CAL ICPMS_TW	1101	
3	CCB		CAL ICPMS_TW	1101	
4	CCB		CAL ICPMS_TW	1102	
5	CCB		CAL ICPMS_TW	1102	
6	CCB		CAL ICPMS_TW	1102	
7	CCB		CAL ICPMS_TW	1102	
8	CCB		CAL ICPMS_TW	1103	
9	CCB		CAL ICPMS_TW	1103	
10	CCB		CAL ICPMS_TW	1103	
11	CalBlk	BLANK STD 1	CAL ICPMS_TW	2101	
12	CalStd	Cal01	CAL ICPMS_TW	2102	
13	CalStd	Cal02	CAL ICPMS_TW	2103	
14	CalStd	Cal03	CAL ICPMS_TW	2104	
15	CalStd	Cal04	CAL ICPMS_TW	2105	
16	CalStd	Cal05	CAL ICPMS_TW	2106	
17	CalStd	Cal06	CAL ICPMS_TW	2107	
18	CalStd	Cal07	CAL ICPMS_TW	2108	
19	ICB	BLANK	CCB ICPMS_TW	1101	
20	ICB	BLANK	CCB ICPMS_TW	1102	

#	Level	Dilution	Skip
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11	1		
12	2		
13	3		
14	4		
15	5		
16	6		
17	7		
18	8		
19			

Sample List

#	Sample Type	Sample Name	Comment	Vial#	File Name
20					
21	ICSA	ICSA-140529	ICSAICPMS_TW	2109	
22	ICSB	ICSAB-140529	ICSBICPMS_TW	2110	
23	ICB	BLANK	CCB ICPMS_TW	1101	
24	ICB	BLANK	CCB ICPMS_TW	1102	
25	ICV	ICV-140529	ICV ICPMS_TW	2111	
26	ICB	ICB-140529	ICB ICPMS_TW	1101	
27	LLICV	LCVL-140529	LCVLICPMS_TW	2112	
28	ICB	ICB-140529	ICB ICPMS_TW	1102	
29	ICB	ICB-140529	ICB ICPMS_TW	1103	
30	PB	MB-63805	MBLK6020A_S	2201	
31	LCS_S	LCS-63805	LCS 6020A_S	2202	
32	LCS_S	LCSD-63805	LCSD6020A_S	2203	
33	CCB	RINSE	CCB ICPMS_TW	1101	
34	AllRef	1405109-39A	SAMP6020A_S	2204	
35	SD	1405109-39A SD	SD 6020A_S	2205	
36	Sample	1405109-40A	SAMP6020A_S	2206	
37	Sample	1405109-41A	SAMP6020A_S	2207	
38	Sample	1405109-42A	SAMP6020A_S	2208	
39	Sample	1405109-43A	SAMP6020A_S	2209	
40	Sample	1405109-44A	SAMP6020A_S	2210	

#	Level	Dilution	Skip
21			
22			
23			
24			
25			
26			
27			
28			
29			
30		5	
31		5	
32		5	
33			
34		5	
35		25	
36		5	
37		5	
38		5	
39		5	
40		5	

#	Sample Type	Sample Name	Comment	Vial#	File Name
41	Sample	1405109-45A	SAMP6020A_S	2211	
42	Sample	1405109-46A	SAMP6020A_S	2212	
43	Sample	1405109-47A	SAMP6020A_S	2301	
44	Sample	1405130-13B	SAMPICPMS_TS	2302	
45	PDS	1405109-39A PDS	PDS 6020A_S	2303	

Sample List

46	MS_S	1405109-39A MS	MS 6020A_S	2304
47	MS_S	1405109-39A MSD	MSD 6020A_S	2305
48	CCV	CCV1-140529	CCV ICPMS_TW	1207
49	CCB	CCB1-140529	CCB ICPMS_TW	1102
50	LLCCV	LCVL1-140529	LCVLICPMS_TW	2112
51	CCB	CCB1-140529	CCB ICPMS_TW	1103
52	CCV	CCV1-140529	CCV ICPMS_TW	1207
53	CCB	CCB1-140529	CCB ICPMS_TW	1102
54	LLCCV	LCVL1-140529	LCVLICPMS_TW	2112
55	CCB	CCB1-140529	CCB ICPMS_TW	1103
56	Sample	1405130-14B	SAMPICPMS_TS	2306
57	Sample	1405130-15B	SAMPICPMS_TS	2307
58	Sample	1405130-16B	SAMPICPMS_TS	2308
59	Sample	1405130-17B	SAMPICPMS_TS	2309
60	Sample	1405130-18B	SAMPICPMS_TS	2310

#	Level	Dilution	Skip
41		5	
42		5	
43		5	
44		5	
45		5	
46		5	
47		5	
48			
49			
50			
51			
52			
53			
54			
55			
56		5	
57		5	
58		5	
59		5	
60		5	

#	Sample Type	Sample Name	Comment	Vial#	File Name
61	Sample	1405130-19B	SAMPICPMS_TS	2311	
62	Sample	1405130-20B	SAMPICPMS_TS	2312	
63	Sample	1405130-21B	SAMPICPMS_TS	2401	
64	Sample	1405130-22B	SAMPICPMS_TS	2402	
65	Sample	1405130-23B	SAMPICPMS_TS	2403	
66	CCV	CCV2-140529	CCV ICPMS_TW	1207	
67	CCB	CCB2-140529	CCB ICPMS_TW	1102	
68	LLCCV	LCVL2-140529	LCVLICPMS_TW	2112	
69	CCB	CCB2-140529	CCB ICPMS_TW	1103	
70	AllRef	1405109-39A	SAMP6020A_S	2404	
71	SD	1405109-39A SD	SD 6020A_S	2405	
72	Sample	1405130-15B	SAMPICPMS_TS	2406	
73	Sample	1405130-18B	SAMPICPMS_TS	2407	

Sample List

74	Sample	1405130-19B	SAMPICPMS_TS	2408
75	Sample	1405130-20B	SAMPICPMS_TS	2409
76	Sample	1405130-21B	SAMPICPMS_TS	2410
77	Sample	1405130-22B	SAMPICPMS_TS	2411
78	Sample	1405130-23B	SAMPICPMS_TS	2412
79	PDS	1405109-39A PDS	PDS 6020A_S	2501
80	CCV	CCV3-140529	CCV ICPMS_TW	1207

#	Level	Dilution	Skip
61		5	
62		5	
63		5	
64		5	
65		5	
66			
67			
68			
69			
70		50	
71		250	
72		50	
73		50	
74		50	
75		50	
76		50	
77		50	
78		50	
79		50	
80			

#	Sample Type	Sample Name	Comment	Vial#	File Name
81	CCB	CCB3-140529	CCB ICPMS_TW	1102	
82	LLCCV	LCVL3-140529	LCVLICPMS_TW	2512	
83	CCB	CCB3-140529	CCB ICPMS_TW	1103	
84	PB_W	MB-63830	MBLK6020A_W	3101	
85	LCS_W	LCS-63830	LCS 6020A_W	3102	
86	LCS_W	LCSD-63830	LCSD6020A_W	3103	
87	CCB	RINSE	CCB ICPMS_TW	1101	
88	AllRef	1405261-03A	SAMP6020A_W	3104	
89	SD	1405261-03A SD	SD 6020A_W	3105	
90	SAMP_W	1405251-61A	SAMP6020A_W	3106	
91	SAMP_W	1405251-62A	SAMP6020A_W	3107	
92	SAMP_W	1405251-63A	SAMP6020A_W	3108	
93	SAMP_W	1405261-01A	SAMP6020A_W	3109	
94	SAMP_W	1405261-02A	SAMP6020A_W	3110	
95	SAMP_W	1405261-04A	SAMP6020A_W	3111	
96	SAMP_W	1405261-05A	SAMP6020A_W	3112	
97	SAMP_W	1405261-06A	SAMP6020A_W	3201	
98	SAMP_W	1405261-07A	SAMP6020A_W	3202	
99	PDS	1405261-03A PDS	PDS 6020A_W	3203	
100	MS_S	1405261-03A MS	MS 6020A_W	3204	

Sample List

#	Level	Dilution	Skip
81			
82			
83			
84		1	
85		1	
86		1	
87			
88		1	
89		5	
90		1	
91		1	
92		1	
93		1	
94		1	
95		1	
96		1	
97		1	
98		1	
99		1	
100		1	

#	Sample Type	Sample Name	Comment	Vial#	File Name
101	MS_S	1405261-03A MSD	MSD 6020A_W	3205	
102	CCV	CCV4-140529	CCV ICPMS_TW	1207	
103	CCB	CCB4-140529	CCB ICPMS_TW	1102	
104	LLCCV	LCVL4-140529	LCVLICPMS_TW	2512	
105	CCB	CCB4-140529	CCB ICPMS_TW	1103	
106	SAMP_W	1405261-08A	SAMP6020A_W	3206	
107	SAMP_W	1405261-09A	SAMP6020A_W	3207	
108	SAMP_W	1405261-10A	SAMP6020A_W	3208	
109	SAMP_W	1405261-11A	SAMP6020A_W	3209	
110	SAMP_W	1405261-12A	SAMP6020A_W	3210	
111	SAMP_W	1405261-13A	SAMP6020A_W	3211	
112	SAMP_W	1405261-14A	SAMP6020A_W	3212	
113	SAMP_W	1405261-15A	SAMP6020A_W	3301	
114	SAMP_W	1405261-16A	SAMP6020A_W	3302	
115	SAMP_W	1405260-02C	SAMPICPMS_TW	3303	
116	CCV	CCV5-140529	CCV ICPMS_TW	1207	
117	CCB	CCB5-140529	CCB ICPMS_TW	1102	
118	LLCCV	LCVL5-140529	LCVLICPMS_TW	2512	
119	CCB	CCB5-140529	CCB ICPMS_TW	1103	
120	PB_W	MB-63798	MBLK6020A_W	3401	

#	Level	Dilution	Skip
101		1	
102			
103			
104			
105			
106		1	
107		1	

Sample List

108		1
109		1
110		1
111		1
112		1
113		1
114		1
115		1
116		
117		
118		
119		
120		1

#	Sample Type	Sample Name	Comment	Vial#	File Name
121	PB_W	MB-63701 TCLP	MBLKTCLP_MET	3402	
122	PB_W	MB-63728 TCLP	MBLKTCLP_MET	3403	
123	LCS_W	LCS-63798	LCS 6020A_W	3404	
124	LCS_W	LCSD-63798	LCSD6020A_W	3405	
125	CCB	RINSE	CCB ICPMS_TW	1101	
126	AllRef	1405265-04A	SAMP6020A_W	3406	
127	SD	1405265-04A SD	SD 6020A_W	3407	
128	SAMP_W	1405265-01A	SAMP6020A_W	3408	
129	SAMP_W	1405265-02A	SAMP6020A_W	3409	
130	SAMP_W	1405265-03A	SAMP6020A_W	3410	
131	SAMP_W	1405245-01A	SAMPTCLP_MET	3411	
132	SAMP_W	1405223-01A	SAMPTCLP_MET	3412	
133	SAMP_W	1405223-02A	SAMPTCLP_MET	3501	
134	SAMP_W	1405223-03A	SAMPTCLP_MET	3502	
135	SAMP_W	1405241-01A	SAMPICPMS_TW	3503	
136	PDS	1405265-04A PDS	PDS 6020A_W	3504	
137	MS_S	1405265-04A MS	MS 6020A_W	3505	
138	MS_S	1405265-04A MSD	MSD 6020A_W	3506	
139	CCV	CCV6-140529	CCV ICPMS_TW	1207	
140	CCB	CCB6-140529	CCB ICPMS_TW	1102	

#	Level	Dilution	Skip
121		1	
122		1	
123		1	
124		1	
125			
126		1	
127		5	
128		1	
129		1	
130		1	
131		1	
132		1	
133		1	
134		1	
135		1	

Sample List

136		1	
137		1	
138		1	
139			
140			

#	Sample Type	Sample Name	Comment	Vial#	File Name
141	LLCCV	LCVL6-140529	LCVLICPMS_TW	2511	
142	CCB	CCB6-140529	CCB ICPMS_TW	1103	
143	SAMP_W	1405261-04A	SAMP6020A_W	3304	
144	SAMP_W	1405261-05A	SAMP6020A_W	3305	
145	SAMP_W	1405261-12A	SAMP6020A_W	3306	
146	CCV	CCV7-140529	CCV ICPMS_TW	1207	
147	CCB	CCB7-140529	CCB ICPMS_TW	1102	
148	LLCCV	LCVL7-140529	LCVLICPMS_TW	2512	
149	CCB	CCB7-140529	CCB ICPMS_TW	1103	
150	PB_W	MB-63851	MBLK6020A_W	3101	
151	LCS_W	LCS-63851	LCS 6020A_W	3102	
152	LCS_W	LCSD-63851	LCSD6020A_W	3103	
153	CCB	RINSE	CCB ICPMS_TW	1101	
154	AllRef	1405265-16A	SAMP6020A_W	3104	
155	SD	1405265-16A SD	SD 6020A_W	3105	
156	SAMP_W	1405265-09A	SAMP6020A_W	3106	
157	SAMP_W	1405265-10A	SAMP6020A_W	3107	
158	SAMP_W	1405265-11A	SAMP6020A_W	3108	
159	SAMP_W	1405265-12A	SAMP6020A_W	3109	
160	SAMP_W	1405265-13A	SAMP6020A_W	3110	

#	Level	Dilution	Skip
141			
142			
143		10	
144		10	
145		10	
146			
147			
148			
149			
150		1	
151		1	
152		1	
153			
154		1	
155		5	
156		1	
157		1	
158		1	
159		1	
160		1	

#	Sample Type	Sample Name	Comment	Vial#	File Name
161	SAMP_W	1405265-14A	SAMP6020A_W	3111	

Sample List

162	SAMP_W	1405265-15A	SAMP6020A_W	3112
163	SAMP_W	1405265-17A	SAMP6020A_W	3201
164	SAMP_W	1405265-18A	SAMP6020A_W	3202
165	PDS	1405265-16A PDS	PDS 6020A_W	3203
166	MS_S	1405265-16A MS	MS 6020A_W	3204
167	MS_S	1405265-16A MSD	MSD 6020A_W	3205
168	CCV	CCV8-140529	CCV ICPMS_TW	1207
169	CCB	CCB8-140529	CCB ICPMS_TW	1102
170	LLCCV	LCVL8-140529	LCVLICPMS_TW	2511
171	CCB	CCB8-140529	CCB ICPMS_TW	1103
172	PB	MB-63857	MBLKICPMS_TS	3301
173	LCS_S	LCS-63857	LCS ICPMS_TS	3302
174	LCS_S	LCSD-63857	LCSDICPMS_TS	3303
175	CCB	RINSE	CCB ICPMS_TW	1101
176	AllRef	1405322-01A	SAMPICPMS_TS	3304
177	SD	1405322-01A SD	SD ICPMS_TS	3305
178	Sample	1405322-02A	SAMPICPMS_TS	3306
179	Sample	1405322-03A	SAMPICPMS_TS	3307
180	Sample	1405322-04A	SAMPICPMS_TS	3308

#	Level	Dilution	Skip
161		1	
162		1	
163		1	
164		1	
165		1	
166		1	
167		1	
168			
169			
170			
171			
172		5	
173		5	
174		5	
175			
176		5	
177		25	
178		5	
179		5	
180		5	

#	Sample Type	Sample Name	Comment	Vial#	File Name
181	Sample	1405322-05A	SAMPICPMS_TS	3309	
182	PDS	1405322-01A PDS	PDS ICPMS_TS	3310	
183	MS_S	1405322-01A MS	MS ICPMS_TS	3311	
184	MS_S	1405322-01A MSD	MSD ICPMS_TS	3312	
185	AllRef	1405322-01A	SAMPICPMS_TS	3401	
186	SD	1405322-01A SD	SD ICPMS_TS	3402	
187	PDS	1405322-01A PDS	PDS ICPMS_TS	3403	
188	CCV	CCV9-140529	CCV ICPMS_TW	1207	
189	CCB	CCB9-140529	CCB ICPMS_TW	1102	

Sample List

190	LLCCV	LCVL9-140529	LCVLICPMS_TW	2511
191	CCB	CCB9-140529	CCB ICPMS_TW	1103

#	Level	Dilution	Skip
181		5	
182		5	
183		5	
184		5	
185		50	
186		250	
187		50	
188			
189			
190			
191			

Unknown Samples:

Blank Samples:

Periodic Block

#	Block Name	Period	Unit	Reset By

Sublist

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/28/2014 11:15:05 AM**
Digestion:
Prep End Date:

Prep Batch **63830** Prep Code: **3005A** Technician: **Ryan Oliver**

Prep Factor Units: **mL/mL**

Equipment List
Thermometer #77
Hot Block #2

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1405251-61A	Aqueous		50	50	1.000	1 of 1
1405251-62A	Aqueous		50	50	1.000	1 of 1
1405251-63A	Aqueous		50	50	1.000	1 of 1
1405260-01C	Soil		50	50	1.000	1 of 1
1405260-02C	Aqueous		50	50	1.000	1 of 1
1405261-01A	Aqueous		50	50	1.000	1 of 1
1405261-02A	Aqueous		50	50	1.000	1 of 1
1405261-03A	Aqueous		50	50	1.000	of 3
1405261-03AMS	Aqueous		50	50	1.000	of
1405261-03AMSD	Aqueous		50	50	1.000	of
1405261-04A	Aqueous		50	50	1.000	1 of 1
1405261-05A	Aqueous		50	50	1.000	1 of 1
1405261-06A	Aqueous		50	50	1.000	1 of 1
1405261-07A	Aqueous		50	50	1.000	1 of 1
1405261-08A	Aqueous		50	50	1.000	1 of 1
1405261-09A	Aqueous		50	50	1.000	1 of 1
1405261-10A	Aqueous		50	50	1.000	1 of 1
1405261-11A	Aqueous		50	50	1.000	1 of 1
1405261-12A	Aqueous		50	50	1.000	1 of 1
1405261-13A	Aqueous		50	50	1.000	1 of 1
1405261-14A	Equip Blank		50	50	1.000	1 of 1
1405261-15A	Aqueous		50	50	1.000	1 of 1
LCS-63830	Aqueous		50	50	1.000	of
LCSD-63830	Aqueous		50	50	1.000	of
MB-63830	Aqueous		50	50	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
7684	Nitric Acid (Trace Metal Grade)	1	ml	08/07/2015
8095	Hydrochloric Acid (Trace Metal Grade)	1	ml	07/05/2016
8174	Digestion Vessels	69	ml	11/23/2014

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-140109-01	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/06/2015
MET-140109-02	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/10/2015
MET-SPIKE-140522-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	08/20/2014
MET-SPIKE-140522-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MS	0.2	06/22/2014
MET-SPIKE-140522-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	06/22/2014

REVIEWED
By Evelyn Ferrero at 6:16:38 PM, 5/29/2014

Calibration Summary Report

Date Acquired 5/29/2014 9:46
Data Batch 140529.b

Level	Calibration File Name
1	011CALB.d
2	012CALS.d
3	013CALS.d
4	014CALS.d
5	015CALS.d
6	016CALS.d
7	017CALS.d
8	018CALS.d

Calibration Table

Ele	Corr Coef	Curve Equation
As	0.9999	y = 0.0011 * x + 2.1565E-004
Be	1.0000	y = 3.8186E-005 * x + 4.3048E-007
B	0.9992	y = 1.7754E-005 * x + 0.0025
Na	0.9999	y = 5.0496E-004 * x + 0.0448
Mg	0.9999	y = 2.6973E-004 * x + 5.2908E-004
Al	0.9995	y = 1.4260E-004 * x + 1.8810E-004
K	0.9999	y = 3.2298E-004 * x + 0.0436
Ca	0.9999	y = 1.9369E-005 * x + 1.7781E-004
Ti	0.9998	y = 1.1750E-004 * x + 7.4045E-006
V	1.0000	y = 0.0037 * x + 0.0015
Cr	1.0000	y = 0.0043 * x + 0.0020
Mn	0.9999	y = 0.0029 * x + 2.4309E-004
Fe	0.9998	y = 0.0042 * x + 0.0119
Co	0.9999	y = 0.0091 * x + 2.4401E-004
Ni	1.0000	y = 0.0024 * x + 0.0018
Cu	1.0000	y = 0.0067 * x + 0.0013
Zn	0.9999	y = 0.0014 * x + 3.5135E-004
Se	1.0000	y = 8.2071E-005 * x + 8.7256E-005
Sr	0.9998	y = 5.7764E-004 * x + 8.8735E-006
Mo	0.9998	y = 3.8196E-004 * x + 4.9318E-006
Ag	0.9998	y = 0.0012 * x + 1.9287E-006
Cd	1.0000	y = 1.9771E-004 * x + 4.5392E-006
Sn	0.9998	y = 4.4848E-004 * x + 7.8381E-005
Sb	0.9999	y = 7.1918E-004 * x + 2.5262E-005
Tl	1.0000	y = 0.0014 * x + 2.6694E-005
Ba	1.0000	y = 2.3492E-004 * x + 5.4033E-006
Pb	1.0000	y = 0.0019 * x + 1.9091E-004

Calibration Summary Report

Level 7 Cal

Ele	Conc	Calc	%Rec
As	500	480.75	96
Be	500	515.21	103
B	500	562.27	112
Na	10000	10351.96	104
Mg	10000	10214.22	102
Al	10000	10148.92	101
K	10000	10274.48	103
Ca	10000	10063.74	101
Ti	500	534.18	107
V	500	512.11	102
Cr	500	515.81	103
Mn	500	515.88	103
Fe	10000	10092.05	101
Co	500	519.15	104
Ni	500	507.53	102
Cu	500	504.76	101
Zn	500	476.50	95
Se	500	504.47	101
Sr	500	532.86	107
Mo	500	535.49	107
Ag	500	495.52	99
Cd	500	501.22	100
Sn	500	538.71	108
Sb	500	498.53	100
Tl	500	499.67	100
Ba	500	491.30	98
Pb	500	504.45	101

Level 8 Cal

Ele	Conc	Calc	%Rec
As	2000	2006.39	100
Be	2000	1996.90	100
B	2000	1984.91	101
Na	25000	24862.96	101
Mg	25000	24881.56	100
K	25000	24889.96	100
Ti	2000	1990.02	101
V	2000	1997.93	100
Cr	2000	1995.76	100
Mn	2000	1998.00	100
Co	2000	1993.99	100
Ni	2000	1997.37	100
Cu	2000	1997.44	100
Zn	2000	2007.50	100
Se	2000	1998.69	100
Sr	2000	1988.31	101
Mo	2000	1988.68	101
Cd	2000	1999.41	100
Sn	2000	1989.01	101
Tl	2000	2000.49	100
Ba	2000	2002.81	100
Pb	2000	1998.62	100

Current Signal

Mass	Range	Count	Avg. Count	RSD [%]
59	2000	1210	1178.4	4.25
89	2000	1453	1450.1	2.50
140	5000	3764	3622.7	2.81
205	5000	3287	3192.7	2.47
156/140	1	0.611 %	0.567 %	13.22
51	200	99	97.1	9.99
56	5000	2923	2868.2	1.46
75	20	13	12.3	14.65
78	50	8	12.6	51.93
Integration Time [sec]		0.10		

Plasma Parameters

RF Power	1550	Carrier Gas	0.60
RF Matching	1.90	Option Gas	0.0
Smpl Depth	8.0	Nebulizer Pump	0.10
S/C Temp	2		

Lenses Parameters

Extract 1	0.0	Omega Lens	12.0
Extract 2	-200.0	Cell Entrance	-40
Omega Bias	-90	Cell Exit	-60
Deflect	0.0		

Cell Parameters

Use Gas	true	3rd Gas Flow	0
He Flow	4.2	OctP Bias	-18.0
H2 Flow	0.0	OctP RF	150
Energy Discrimination	3.0		

Meters

Water Temp	17.5	℃	Carrier Gas	0.60	L/min
MU./Dil. Gas	0.45	L/min	Reflected Power	11	W
Forward Power	1550	W			

Current Signal

Mass	Range	Count	Avg. Count	RSD [%]
59	2000	1215	1217.5	2.80
89	2000	1412	1477.2	2.39
140	5000	3453	3712.8	4.22
205	5000	3394	3158.4	4.65
156/140	1	0.463 %	0.497 %	42.37
51	200	94	90.2	11.70
56	5000	2542	2720.4	4.38
75	20	10	7.2	44.49
78	50	21	13.5	49.30
Integration Time [sec]		0.10		

Plasma Parameters

RF Power	1550	Carrier Gas	0.60
RF Matching	1.90	Option Gas	0.0
Smpl Depth	8.0	Nebulizer Pump	0.10
S/C Temp	2		

Lenses Parameters

Extract 1	0.0	Omega Lens	12.0
Extract 2	-200.0	Cell Entrance	-40
Omega Bias	-90	Cell Exit	-60
Deflect	0.0		

Cell Parameters

Use Gas	true	3rd Gas Flow	0
He Flow	4.2	OctP Bias	-18.0
H2 Flow	0.0	OctP RF	150
Energy Discrimination	3.0		

Meters

Water Temp	17.4	℃	Carrier Gas	0.60	L/min
MU./Dil. Gas	0.45	L/min	Reflected Power	12	W
Forward Power	1549	W			

US EPA Tune Check Sample Report

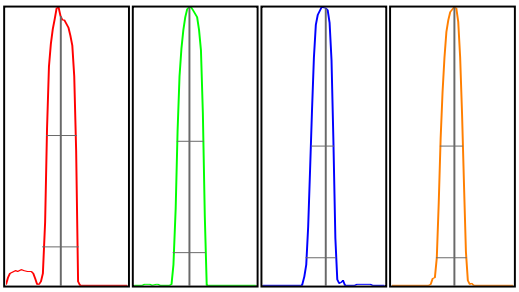
Batch Folder C:\Agilent\ICPMH\1\DATA\DHL TEMPLATE 1.b
Report Comment
Instrument Name ICPMS4 JP12361998

[No gas]

Mass	Count (Mean)	RSD% (Actual)	RSD% (Required)	RSD% (Flag)
7	3068	2.02	5.00	
59	668099	0.70	5.00	
115	947314	1.41	5.00	
205	1596726	2.42	5.00	

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
7	3107	3124	3007	3108	2995
59	662835	668195	663981	672428	673055
115	936328	958717	955217	956636	929670
205	1654368	1607289	1599111	1566672	1556188

Integration Time [sec] = 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	Width-X% (Actual)	Width-X% (Required)	Width-X% (Flag)
7	450	6.90	6.9 - 7.1		0.811	0.850	
59	111581	58.90	58.9 - 59.1		0.767	0.850	
115	179032	115.05	114.9 - 115.1		0.714	0.850	
205	312021	205.05	204.9 - 205.1		0.709	0.850	

X% = 10 **Int Time [sec] =** 0.1 **Acq Time [sec] =** 135.05 **Y Axis =** Linear

Tune Parameters

Plasma Paramters

ParameterName	Value	Unit	ParameterName	Value	Unit
RF Power	1550	W	Nebulizer Pump	0.10	rps
RF Matching	1.90	V	S/C Temp	2	℃
Smpl Depth	8.0	mm	Gas Switch	Dilution Gas	
Carrier Gas	0.60	L/min	Makeup/Dilution Gas	0.45	L/min
Option Gas	0.0	%			

Lenses Parameters

ParameterName	Value	Unit	ParameterName	Value	Unit
Extract 1	0.0	V	Cell Entrance	-40	V
Extract 2	-200.0	V	Cell Exit	-60	V
Omega Bias	-90	V	Deflect	0.0	V
Omega Lens	12.0	V	Plate Bias	-60	V

Cell Parameters

ParameterName	Value	Unit	ParameterName	Value	Unit
Use Gas	true		OctP Bias	-18.0	V
He Flow	4.2	mL/min	OctP RF	150	V
H2 Flow	0.0	mL/min	Energy Discrimination	3.0	V
3rd Gas Flow	0	%			

P/A Factor Tuning Report

Current Sample

Sample Name: CCB9-140529
Data File: 191_CCB.d
Acquired: 05/29/2014 16:07:28

Detector Parameters and P/A Factors

Discriminator: 4.5 mV
AnalogHV: 1602 V
PulseHV: 1123 V

Acquired: 05/29/2014 09:15:11

Mass[u]	Element	P/A Factor
6	Li	0.091771
9	Be	0.105720
23	Na	0.115329
24	Mg	0.121689
27	Al	0.126097
39	K	0.124109
45	Sc	0.126535
48		0.127749
51	V	0.130574
52	Cr	0.134518
55	Mn	0.137403
59	Co	0.141813
60	Ni	0.143454
63	Cu	0.146586
66	Zn	0.146858
72		0.145230
74	Ge	0.145813
75	As	0.144138
88	Sr	0.145518
89		0.144112
95		0.144776
97	Mo	0.145656
98	Mo	0.145659
99	[Mo]	0.148441
101		0.148849
105		0.153271
111	Cd	0.154923
114	Cd	0.156176
115	In	0.155708
118	Sn	0.155158
121		0.154980
123	Sb	0.155476
135	Ba	0.154116
138		0.157111
175		0.163438
193		0.165276
205	Tl	0.167797
206	[Pb]	0.167745
207	[Pb]	0.168694
208	Pb	0.167873
209	Bi	0.168669
232		0.167925
238	U	0.168291
44	Ca	Signal too low
78	Se	Signal too low
107	Ag	Signal too low
172		Signal too low

Calibration Blank Report

Date Acquired	5/29/2014 9:46	Sample Name	BLANK STD 1
Data Batch	140529.b	Comment	CAL ICPMS_TW
Data File Name	011CALB.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	1	173.21
11	B	45	3854	2.46
23	Na	45	68188	0.99
24	Mg	45	806	4.35
27	Al	45	287	14.15
39	K	45	66335	0.35
44	Ca	45	270	14.97
47	Ti	45	11	96.43
51	V	45	2327	6.13
52	Cr	45	3064	5.91
55	Mn	45	370	3.25
56	Fe	45	18038	3.40
59	Co	72	262	9.71
60	Ni	72	1911	1.62
63	Cu	72	1440	2.35
66	Zn	72	378	11.38
75	As	72	232	2.72
78	Se	72	94	17.32
88	Sr	115	102	29.59
95	Mo	115	57	35.29
107	Ag	115	22	8.65
111	Cd	115	52	16.07
118	Sn	115	902	3.23
121	Sb	115	291	13.66
137	Ba	115	62	43.29
205	Tl	209	598	6.97
208	Pb	209	4276	1.44

QC ISTD Table

Mass	Name	CPS	%RSD
45	Sc	1522183	2.30
72	Ge	1074520	1.02
115	In	11514007	1.43
209	Bi	22396997	0.41

Calibration Standard Report

Date Acquired	5/29/2014 9:48	Sample Name	Cal01
Data Batch	140529.b	Comment	CAL ICPMS_TW
Data File Name	012CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	63	24.53
11	B	45	3567	8.21
23	Na	45	84472	0.56
24	Mg	45	8816	3.02
27	Al	45	4226	2.13
39	K	45	76261	0.06
44	Ca	45	791	6.69
47	Ti	45	209	31.00
51	V	45	7462	2.13
52	Cr	45	8998	1.99
55	Mn	45	4480	2.18
56	Fe	45	131828	0.86
59	Co	72	9353	1.71
60	Ni	72	4426	4.99
63	Cu	72	8981	1.67
66	Zn	72	1760	1.55
75	As	72	1262	2.79
78	Se	72	201	9.04
88	Sr	115	6326	3.66
95	Mo	115	4281	3.17
107	Ag	115	12538	1.04
111	Cd	115	2132	3.47
118	Sn	115	5821	3.83
121	Sb	115	7718	2.66
137	Ba	115	2596	5.10
205	Tl	209	28250	1.14
208	Pb	209	42023	0.83

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1494904	1.66	1522183	98.21	70	120	
72	Ge	1058032	0.20	1074520	98.47	70	120	
115	In	11384747	0.73	11514007	98.88	70	120	
209	Bi	22417339	0.84	22396997	100.09	70	120	

Calibration Standard Report

Date Acquired	5/29/2014 9:50	Sample Name	Cal02
Data Batch	140529.b	Comment	CAL ICPMS_TW
Data File Name	013CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	517	5.79
11	B	45	3447	1.71
23	Na	45	214279	0.26
24	Mg	45	78107	0.76
27	Al	45	39445	1.62
39	K	45	158370	0.39
44	Ca	45	5683	1.21
47	Ti	45	1840	4.15
51	V	45	52804	0.94
52	Cr	45	63763	1.96
55	Mn	45	40522	1.68
56	Fe	45	1147780	0.54
59	Co	72	92457	0.26
60	Ni	72	27199	1.20
63	Cu	72	69199	1.30
66	Zn	72	13995	0.10
75	As	72	10719	1.50
78	Se	72	945	2.54
88	Sr	115	63002	1.77
95	Mo	115	41558	1.31
107	Ag	115	126078	1.10
111	Cd	115	20712	2.30
118	Sn	115	49218	1.17
121	Sb	115	72776	1.44
137	Ba	115	23912	1.86
205	Tl	209	278504	0.75
208	Pb	209	382434	0.29

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1455063	2.07	1522183	95.59	70	120	
72	Ge	1046043	0.29	1074520	97.35	70	120	
115	In	11024871	2.28	11514007	95.75	70	120	
209	Bi	21658082	1.06	22396997	96.70	70	120	

Calibration Standard Report

Date Acquired	5/29/2014 9:52	Sample Name	Cal03
Data Batch	140529.b	Comment	CAL ICPMS_TW
Data File Name	014CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	2782	4.07
11	B	45	4472	4.24
23	Na	45	824324	1.05
24	Mg	45	406271	2.51
27	Al	45	205433	2.79
39	K	45	540224	2.23
44	Ca	45	28751	0.83
47	Ti	45	9178	2.85
51	V	45	263999	1.56
52	Cr	45	319190	1.22
55	Mn	45	209474	1.19
56	Fe	45	6182071	0.86
59	Co	72	481585	0.15
60	Ni	72	130823	1.77
63	Cu	72	348827	0.66
66	Zn	72	70817	0.59
75	As	72	55363	1.03
78	Se	72	4395	1.92
88	Sr	115	325811	0.28
95	Mo	115	219427	0.24
107	Ag	115	653690	1.73
111	Cd	115	107851	2.45
118	Sn	115	252422	1.36
121	Sb	115	379430	1.40
137	Ba	115	124150	0.87
205	Tl	209	1463382	1.72
208	Pb	209	1981970	0.07

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1528204	2.86	1522183	100.40	70	120	
72	Ge	1030077	1.28	1074520	95.86	70	120	
115	In	11147998	1.34	11514007	96.82	70	120	
209	Bi	21714969	0.23	22396997	96.95	70	120	

Calibration Standard Report

Date Acquired	5/29/2014 9:54	Sample Name	Cal04
Data Batch	140529.b	Comment	CAL ICPMS_TW
Data File Name	015CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	5656	1.52
11	B	45	6119	3.52
23	Na	45	1632265	2.75
24	Mg	45	824200	1.29
27	Al	45	411615	0.40
39	K	45	1031449	0.04
44	Ca	45	57958	1.35
47	Ti	45	18716	2.43
51	V	45	536694	0.10
52	Cr	45	646103	0.30
55	Mn	45	423691	0.54
56	Fe	45	12332907	0.79
59	Co	72	967385	0.55
60	Ni	72	260744	0.29
63	Cu	72	708964	0.02
66	Zn	72	144846	0.68
75	As	72	111061	0.42
78	Se	72	8734	1.47
88	Sr	115	664539	1.04
95	Mo	115	443641	0.38
107	Ag	115	1331128	0.13
111	Cd	115	217065	0.64
118	Sn	115	511122	0.37
121	Sb	115	772297	0.48
137	Ba	115	254556	1.19
205	Tl	209	3068566	1.47
208	Pb	209	4064908	1.03

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1489029	2.93	1522183	97.82	70	120	
72	Ge	1030945	0.38	1074520	95.94	70	120	
115	In	10936999	1.11	11514007	94.99	70	120	
209	Bi	21699698	1.80	22396997	96.89	70	120	

Calibration Standard Report

Date Acquired	5/29/2014 9:56	Sample Name	Cal05
Data Batch	140529.b	Comment	CAL ICPMS_TW
Data File Name	016CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	14070	1.34
11	B	45	10668	1.52
23	Na	45	3828179	1.21
24	Mg	45	2088553	0.95
27	Al	45	1016617	0.31
39	K	45	2497013	1.60
44	Ca	45	142388	1.62
47	Ti	45	45674	2.42
51	V	45	1354150	2.11
52	Cr	45	1633896	2.37
55	Mn	45	1046033	0.67
56	Fe	45	30599095	0.80
59	Co	72	2450056	2.05
60	Ni	72	648936	0.30
63	Cu	72	1808498	1.86
66	Zn	72	356851	0.75
75	As	72	275850	0.64
78	Se	72	21594	0.60
88	Sr	115	1744127	1.71
95	Mo	115	1116446	1.10
107	Ag	115	3365328	1.73
111	Cd	115	546647	0.99
118	Sn	115	1272408	0.53
121	Sb	115	2003461	1.37
137	Ba	115	632676	0.80
205	Tl	209	7672713	1.30
208	Pb	209	10379311	0.73

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1504282	1.80	1522183	98.82	70	120	
72	Ge	1045955	0.42	1074520	97.34	70	120	
115	In	10955998	1.56	11514007	95.15	70	120	
209	Bi	22241844	1.40	22396997	99.31	70	120	

Calibration Standard Report

Date Acquired	5/29/2014 9:58	Sample Name	Cal06
Data Batch	140529.b	Comment	CAL ICPMS_TW
Data File Name	017CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	28372	1.52
11	B	45	18045	1.28
23	Na	45	7600569	1.79
24	Mg	45	3972974	1.90
27	Al	45	2086534	2.56
39	K	45	4848851	1.99
44	Ca	45	281337	1.12
47	Ti	45	90523	1.39
51	V	45	2721870	1.22
52	Cr	45	3199444	2.52
55	Mn	45	2189891	3.52
56	Fe	45	61185264	0.75
59	Co	72	4850951	0.42
60	Ni	72	1272668	0.85
63	Cu	72	3460315	1.35
66	Zn	72	702168	0.70
75	As	72	546581	0.50
78	Se	72	42721	0.69
88	Sr	115	3367803	1.07
95	Mo	115	2237983	0.66
107	Ag	115	6452178	1.48
111	Cd	115	1084273	1.38
118	Sn	115	2644788	2.51
121	Sb	115	3922868	1.54
137	Ba	115	1262946	0.99
205	Tl	209	15143689	1.08
208	Pb	209	20250594	0.89

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1442194	1.74	1522183	94.75	70	120	
72	Ge	1029673	0.22	1074520	95.83	70	120	
115	In	10942298	0.93	11514007	95.03	70	120	
209	Bi	21669900	0.46	22396997	96.75	70	120	

Calibration Standard Report

Date Acquired	5/29/2014 10:00	Sample Name	Cal07
Data Batch	140529.b	Comment	CAL ICPMS_TW
Data File Name	018CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	112362	1.18
11	B	45	55656	0.74
23	Na	45	18568014	0.51
24	Mg	45	9890104	1.02
27	Al	45	3906	8.38
39	K	45	11911523	1.77
44	Ca	45	741971	0.67
47	Ti	45	344484	1.81
51	V	45	10843120	1.80
52	Cr	45	12637171	1.23
55	Mn	45	8664084	1.13
56	Fe	45	44866	12.24
59	Co	72	18626828	1.12
60	Ni	72	5000914	1.75
63	Cu	72	13681999	2.59
66	Zn	72	2956697	2.73
75	As	72	2279671	1.95
78	Se	72	168944	0.24
88	Sr	115	12512247	0.54
95	Mo	115	8275800	0.89
107	Ag	115	2726	21.67
111	Cd	115	4306825	2.69
118	Sn	115	9719800	1.19
121	Sb	115	2571	13.27
137	Ba	115	5125764	0.48
205	Tl	209	59976200	2.10
208	Pb	209	79360569	0.69

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1474077	2.23	1522183	96.84	70	120	
72	Ge	1029511	1.45	1074520	95.81	70	120	
115	In	10895166	1.04	11514007	94.63	70	120	
209	Bi	21438060	0.33	22396997	95.72	70	120	

Interference Check Solution A (ICS-A) Report

Date Acquired	5/29/2014 10:06	Sample Name	ICSA-140529
Data Batch	140529.b	Comment	ICSAICPMS_TW
Data File Name	021ICSA.d	Dilution	1

Mass	Name	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	0.034	2	24.7	1.2	0.8	
11	B	24.708	3995	1.8	30	30	
51	V	-0.014	1987	4.8	10	10	
52	Cr	0.475	5455	6.8	8	5	
55	Mn	2.311	9472	3.7	8	10	
59	Co	0.635	5836	2.4	8	10	
60	Ni	0.346	2545	2.8	8	10	
63	Cu	0.923	7268	2.0	8	10	
66	Zn	2.330	3578	2.1	10	5	
75	As	0.284	513	7.7	4	5	
78	Se	0.138	96	8.7	2	5	
88	Sr	0.496	2927	5.4	10	10	
107	Ag	0.174	2068	0.5	0.8	2	
111	Cd	0.969	1941	4.2	1.2	1	
118	Sn	0.751	4112	8.3	10	10	
121	Sb	0.695	5201	4.9	4	2.5	
137	Ba	0.388	956	8.6	8	10	
205	Tl	0.089	2984	1.5	4	1.5	
208	Pb	0.607	25928	11.3	1.2	1	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1344831	0.43	1522183	88.35	70	120	
72	Ge	971427	0.82	1074520	90.41	70	120	
115	In	9903414	0.94	11514007	86.01	70	120	
209	Bi	19700401	0.63	22396997	87.96	70	120	

Interference Check Solution AB (ICS-AB) Report

Date Acquired	5/29/2014 10:07	Sample Name	ICSAB-140529
Data Batch	140529.b	Comment	ICSBICPMS_TW
Data File Name	022ICSB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
51	V	45	40.337	197927	0.60	40	100.8	80	120	
52	Cr	45	21.218	122863	0.74	20	106.1	80	120	
55	Mn	45	21.042	81989	1.98	20	105.2	80	120	
59	Co	72	42.222	360933	0.49	40	105.6	80	120	
60	Ni	72	40.799	95084	1.20	40	102.0	80	120	
63	Cu	72	20.018	126692	1.45	20	100.1	80	120	
66	Zn	72	20.941	28530	0.46	20	104.7	80	120	
75	As	72	19.955	20938	0.65	20	99.8	80	120	
78	Se	72	20.540	1669	3.67	20	102.7	80	120	
107	Ag	115	19.355	229375	1.15	20	96.8	80	120	
111	Cd	115	10.759	21227	1.56	10	107.6	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1318873	1.59	1522183	86.64	70	120	
72	Ge	941451	0.41	1074520	87.62	70	120	
115	In	9958392	0.86	11514007	86.49	70	120	
209	Bi	19715514	0.75	22396997	88.03	70	120	

Initial Calibration Verification (ICV) Report

Date Acquired	5/29/2014 10:13	Sample Name	ICV-140529
Data Batch	140529.b	Comment	ICV ICPMS_TW
Data File Name	025_ICV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	98.997	5468	1.28	100	99.0	90	110	
11	B	45	82.607	5780	4.33	100	82.6	90	110	Fail
23	Na	45	2794.398	2105305	3.84	2500	111.8	90	110	Fail
24	Mg	45	2794.767	1090920	0.64	2500	111.8	90	110	Fail
27	Al	45	2425.540	500475	0.74	2500	97.0	90	110	
39	K	45	2854.506	1396455	1.59	2500	114.2	90	110	Fail
44	Ca	45	2641.048	74237	1.24	2500	105.6	90	110	
47	Ti	45	103.016	17512	2.62	100	103.0	90	110	
51	V	45	97.049	519112	0.38	100	97.0	90	110	
52	Cr	45	102.145	637609	0.79	100	102.1	90	110	
55	Mn	45	97.776	416482	1.29	100	97.8	90	110	
56	Fe	45	2422.640	14742435	1.75	2500	96.9	90	110	
59	Co	72	103.165	969040	1.14	100	103.2	90	110	
60	Ni	72	102.450	259674	0.88	100	102.4	90	110	
63	Cu	72	99.801	688750	0.17	100	99.8	90	110	
66	Zn	72	95.298	141428	0.74	100	95.3	90	110	
75	As	72	94.207	107825	0.57	100	94.2	90	110	
78	Se	72	99.472	8539	0.80	100	99.5	90	110	
88	Sr	115	98.995	628893	0.50	100	99.0	90	110	
95	Mo	115	94.979	399011	1.42	100	95.0	90	110	
107	Ag	115	96.482	1262709	1.39	100	96.5	90	110	
111	Cd	115	98.272	213670	0.53	100	98.3	90	110	
118	Sn	115	99.462	491410	1.14	100	99.5	90	110	
121	Sb	115	91.931	727270	0.67	100	91.9	90	110	
137	Ba	115	96.944	250488	0.71	100	96.9	90	110	
205	Tl	209	98.953	3009546	0.48	100	99.0	90	110	
208	Pb	209	99.949	4030218	2.14	100	99.9	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1446276	1.34	1522183	95.01	70	120	
72	Ge	1034875	0.45	1074520	96.31	70	120	
115	In	10998164	1.88	11514007	95.52	70	120	
209	Bi	21747667	1.72	22396997	97.10	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/29/2014 10:17	Sample Name	LCVL-140529
Data Batch	140529.b	Comment	LCVLICPMS_TW
Data File Name	027LICV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.917	54	9.80	1	91.7	70	130	
11	B	45	12.631	4205	1.27	20	63.2	70	130	Fail
23	Na	45	111.841	154538	0.32	100	111.8	70	130	
24	Mg	45	109.535	45898	1.74	100	109.5	70	130	
27	Al	45	88.967	19641	1.70	100	89.0	70	130	
39	K	45	111.326	121385	0.19	100	111.3	70	130	
44	Ca	45	104.565	3363	2.38	100	104.6	70	130	
47	Ti	45	5.017	911	4.60	5	100.3	70	130	
51	V	45	1.032	8135	2.01	1	103.2	70	130	
52	Cr	45	4.941	35459	1.16	5	98.8	70	130	
55	Mn	45	4.652	21260	1.94	5	93.0	70	130	
56	Fe	45	89.906	594757	0.38	100	89.9	70	130	
59	Co	72	5.078	49698	0.56	5	101.6	70	130	
60	Ni	72	5.109	15239	3.47	5	102.2	70	130	
63	Cu	72	5.085	37750	0.81	5	101.7	70	130	
66	Zn	72	4.649	7512	1.68	5	93.0	70	130	
75	As	72	4.662	5752	1.15	5	93.2	70	130	
78	Se	72	5.220	553	7.23	5	104.4	70	130	
88	Sr	115	5.050	32922	1.59	5	101.0	70	130	
95	Mo	115	4.837	20841	1.44	5	96.7	70	130	
107	Ag	115	1.847	24755	1.11	2	92.4	70	130	
111	Cd	115	0.990	2254	1.74	1	99.0	70	130	
118	Sn	115	5.189	27055	2.92	5	103.8	70	130	
121	Sb	115	1.743	14380	1.08	2	87.1	70	130	
137	Ba	115	4.715	12525	2.52	5	94.3	70	130	
205	Tl	209	0.967	30760	1.63	1	96.7	70	130	
208	Pb	209	1.051	47692	1.96	1	105.1	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1526305	2.16	1522183	100.27	70	120	
72	Ge	1072879	0.38	1074520	99.85	70	120	
115	In	11255079	2.86	11514007	97.75	70	120	
209	Bi	22310560	1.05	22396997	99.61	70	120	

Initial Calibration Blank (ICB) Report

Date Acquired	5/29/2014 10:21	Sample Name	ICB-140529
Data Batch	140529.b	Comment	ICB ICPMS_TW
Data File Name	029_ICB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.016	2	173.2	0.4	0.3	
11	B	45	2.899	4072	1.8	10	10	
23	Na	45	-1.132	69722	1.3	50	100	
24	Mg	45	-0.937	436	11.7	50	100	
27	Al	45	-0.311	227	19.2	50	10	
39	K	45	-0.565	68428	0.5	50	100	
44	Ca	45	-3.466	174	5.8	50	100	
47	Ti	45	-0.045	3	0.0	4	3	
51	V	45	0.071	2821	7.6	4	3	
52	Cr	45	-0.004	3148	5.0	2	2	
55	Mn	45	-0.012	326	4.8	2	3	
56	Fe	45	0.013	18782	2.1	50	50	
59	Co	72	-0.004	229	14.7	2	3	
60	Ni	72	-0.078	1745	7.2	2	3	
63	Cu	72	-0.005	1433	2.0	2	2	
66	Zn	72	0.008	398	7.1	4	2	
75	As	72	0.008	247	5.1	2	2	
78	Se	72	-0.004	95	12.3	1	2	
88	Sr	115	-0.002	88	15.8	4	3	
95	Mo	115	0.017	133	22.2	2	2	
107	Ag	115	0.005	96	21.3	0.4	1	
111	Cd	115	0.002	57	56.1	0.4	0.3	
118	Sn	115	0.115	1508	5.3	4	3	
121	Sb	115	-0.007	234	19.9	2	0.8	
137	Ba	115	0.012	96	30.5	2	3	
205	Tl	209	0.001	639	8.6	2	0.5	
208	Pb	209	0.028	5560	3.1	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1576182	0.30	1522183	103.55	70	120	
72	Ge	1096595	1.34	1074520	102.05	70	120	
115	In	11582562	1.93	11514007	100.60	70	120	
209	Bi	22865615	0.47	22396997	102.09	70	120	

Method Blank Report

Date Acquired	5/29/14 10:23 AM	Sample Name	MB-63805
Data Batch	140529.b	Comment	MBLK6020A_S
Data File Name	030_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.010	1	43.30		
11	B	45	-14.947	3692	7.24		
23	Na	45	1.437	74125	0.97		
24	Mg	45	2.875	2122	5.12		
27	Al	45	4.700	1398	2.16		
39	K	45	-2.028	69916	1.67		
44	Ca	45	20.011	921	4.24		
47	Ti	45	0.006	13	49.99		
51	V	45	0.037	2711	5.05		
52	Cr	45	0.025	3451	0.90		
55	Mn	45	0.039	584	5.18		
56	Fe	45	1.952	32657	1.93		
59	Co	72	0.003	300	9.49		
60	Ni	72	-0.019	1915	4.66		
63	Cu	72	0.128	2422	6.21		
66	Zn	72	1.249	2362	2.53		
75	As	72	-0.019	214	10.63		
78	Se	72	0.230	117	11.74		
88	Sr	115	0.050	433	8.67		
95	Mo	115	0.032	198	32.87		
107	Ag	115	0.007	113	16.38		
111	Cd	115	0.002	58	13.33		
118	Sn	115	4.373	23559	2.51		J
121	Sb	115	-0.006	244	12.67		
137	Ba	115	0.059	223	7.90		
205	Tl	209	0.013	1037	4.03		
208	Pb	209	0.153	10834	5.62		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1628840	2.73	1522183	107.01	70	120	
72	Ge	1104870	1.45	1074520	102.82	70	120	
115	In	11550302	0.29	11514007	100.32	70	120	
209	Bi	22908480	2.73	22396997	102.28	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/29/2014 10:25	Sample Name	LCS-63805
Data Batch	140529.b	Comment	LCS 6020A_S
Data File Name	031_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	200.158	11618	1.19	200	200.2	80	120	
11	B	45	189.204	8957	2.13	200	189.2	80	120	
23	Na	45	1055.705	878401	0.46	1000	1055.7	80	120	
24	Mg	45	1053.674	432808	0.53	1000	1053.7	80	120	
27	Al	45	1013.085	219872	1.83	1000	1013.1	80	120	
39	K	45	1043.706	578709	0.59	1000	1043.7	80	120	
44	Ca	45	1445.543	42831	0.80	1000	1445.5	80	120	Fail
47	Ti	45	220.432	39378	1.81	200	220.4	80	120	
51	V	45	200.195	1123058	1.39	200	200.2	80	120	
52	Cr	45	215.800	1412274	1.57	200	215.8	80	120	
55	Mn	45	197.407	883450	1.35	200	197.4	80	120	
56	Fe	45	1031.164	6605785	2.24	1000	1031.2	80	120	
59	Co	72	217.610	2119946	2.68	200	217.6	80	120	
60	Ni	72	212.053	555476	0.82	200	212.1	80	120	
63	Cu	72	208.502	1491027	0.20	200	208.5	80	120	
66	Zn	72	192.809	296426	1.38	200	192.8	80	120	
75	As	72	194.659	230862	0.61	200	194.7	80	120	
78	Se	72	199.753	17692	1.14	200	199.8	80	120	
88	Sr	115	209.712	1389378	1.32	200	209.7	80	120	
95	Mo	115	212.820	932481	1.52	200	212.8	80	120	
107	Ag	115	206.546	2818952	0.51	200	206.5	80	120	
111	Cd	115	198.772	450809	1.22	200	198.8	80	120	
118	Sn	115	214.046	1101950	0.61	200	214.0	80	120	
121	Sb	115	200.088	1650861	2.78	200	200.1	80	120	
137	Ba	115	197.018	530895	0.27	200	197.0	80	120	
205	Tl	209	201.157	6318857	1.67	200	201.2	80	120	
208	Pb	209	203.332	8461346	0.22	200	203.3	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1520489	2.00	1522183	99.89	70	120	
72	Ge	1073471	0.20	1074520	99.90	70	120	
115	In	11472148	2.11	11514007	99.64	70	120	
209	Bi	22457988	1.15	22396997	100.27	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/29/2014 10:27	Sample Name	LCSD-63805
Data Batch	140529.b	Comment	LCSD6020A_S
Data File Name	032_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	197.437	11397	0.48	200	197.4	80	120	
11	B	45	188.523	8887	0.48	200	188.5	80	120	
23	Na	45	1069.886	884417	0.48	1000	1069.9	80	120	
24	Mg	45	1050.437	429123	0.62	1000	1050.4	80	120	
27	Al	45	993.013	214315	1.04	1000	993.0	80	120	
39	K	45	1038.596	572924	0.51	1000	1038.6	80	120	
44	Ca	45	1416.998	41759	1.08	1000	1417.0	80	120	Fail
47	Ti	45	215.415	38267	1.18	200	215.4	80	120	
51	V	45	199.107	1110834	0.04	200	199.1	80	120	
52	Cr	45	208.795	1358919	1.30	200	208.8	80	120	
55	Mn	45	196.228	873289	0.58	200	196.2	80	120	
56	Fe	45	1018.697	6491748	2.10	1000	1018.7	80	120	
59	Co	72	214.549	2075319	2.47	200	214.5	80	120	
60	Ni	72	209.431	544704	0.05	200	209.4	80	120	
63	Cu	72	207.661	1474303	2.65	200	207.7	80	120	
66	Zn	72	191.154	291786	0.75	200	191.2	80	120	
75	As	72	194.376	228878	0.22	200	194.4	80	120	
78	Se	72	200.790	17656	0.61	200	200.8	80	120	
88	Sr	115	214.000	1380912	0.50	200	214.0	80	120	
95	Mo	115	215.805	920820	0.39	200	215.8	80	120	
107	Ag	115	212.816	2829089	2.12	200	212.8	80	120	
111	Cd	115	202.170	446536	0.25	200	202.2	80	120	
118	Sn	115	215.696	1081496	0.83	200	215.7	80	120	
121	Sb	115	204.348	1641898	0.47	200	204.3	80	120	
137	Ba	115	199.333	523132	1.00	200	199.3	80	120	
205	Tl	209	200.662	6263361	1.40	200	200.7	80	120	
208	Pb	209	205.824	8510410	0.99	200	205.8	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1511922	1.80	1522183	99.33	70	120	
72	Ge	1065800	0.39	1074520	99.19	70	120	
115	In	11170680	0.53	11514007	97.02	70	120	
209	Bi	22326122	3.33	22396997	99.68	70	120	

Dilution Sample (Dil) Report

Date Acquired	5/29/2014 10:32	Sample Name	1405109-39A SD
Data Batch	140529.b	Comment	SD 6020A_S
Data File Name	035_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
9	Be	45	0.549	32	17.03	2.4	113.4	110	90	
11	B	45	-25.660	3131	2.95	-17.8	721.2	110	90	
23	Na	45	31.756	91702	1.19	158.1	100.4	110	90	Good
24	Mg	45	903.466	368206	0.92	4466.0	101.1	110	90	Good
27	Al	45	21437.839	4609372	0.60	104170.8	102.9	110	90	Good
39	K	45	795.718	453137	0.42	3976.7	100.0	110	90	Good
44	Ca	45	232.645	7064	2.96	1133.7	102.6	110	90	Good
47	Ti	45	71.163	12578	21.09	264.8	134.4	110	90	
51	V	45	35.432	199054	0.54	174.4	101.6	110	90	Good
52	Cr	45	22.407	148179	0.81	110.3	101.6	110	90	Good
55	Mn	45	21.476	95650	0.71	104.1	103.2	110	90	Good
56	Fe	45	17591.578	111519733	1.36	85217.5	103.2	110	90	Good
59	Co	72	2.979	28188	1.07	14.6	101.8	110	90	Good
60	Ni	72	6.935	19265	1.71	34.5	100.4	110	90	Good
63	Cu	72	3.808	27574	1.61	18.3	103.9	110	90	Good
66	Zn	72	20.305	30378	1.02	97.1	104.5	110	90	Good
75	As	72	4.669	5548	1.42	22.9	101.7	110	90	Good
78	Se	72	1.323	202	12.27	5.3	125.1	110	90	
88	Sr	115	8.855	57296	1.77	44.8	98.9	110	90	Good
95	Mo	115	0.555	2425	3.13	2.7	101.3	110	90	Good
107	Ag	115	0.030	416	4.12	0.1	135.5	110	90	
111	Cd	115	0.007	67	8.66	0.0	94.4	110	90	Good
118	Sn	115	1.292	7354	1.52	6.5	98.8	110	90	Good
121	Sb	115	0.060	762	5.55	0.4	82.7	110	90	
137	Ba	115	44.847	117863	0.25	227.6	98.5	110	90	Good
205	Tl	209	0.226	7759	4.84	1.1	107.1	110	90	Good
208	Pb	209	6.939	295133	0.18	35.6	97.6	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1508050	2.30	1522183	99.07	70	120	
72	Ge	1033435	0.94	1074520	96.18	70	120	
115	In	11182033	0.76	11514007	97.12	70	120	
209	Bi	22628927	0.94	22396997	101.04	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	5/29/2014 10:52	Sample Name	1405109-39A PDS
Data Batch	140529.b	Comment	PDS 6020A_S
Data File Name	045_PDS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	209.732	11608	0.62	2.4	200	103.7	75	125	
11	B	45	176.645	8214	1.56	-17.8	200	97.2	75	125	
23	Na	45	5694.885	4232823	0.59	158.1	5000	110.7	75	125	
24	Mg	45	10212.740	3993199	1.00	4466.0	5000	114.9	75	125	
27	Al	45	########	23042002	0.62	104170.8	5000	146.3	75	125	Fail
39	K	45	9638.105	4574711	1.79	3976.7	5000	113.2	75	125	
44	Ca	45	6662.750	187305	1.32	1133.7	5000	110.6	75	125	
47	Ti	45	488.395	83183	0.22	264.8	200	111.8	75	125	
51	V	45	397.778	2125488	3.00	174.4	200	111.7	75	125	
52	Cr	45	340.254	2121679	1.32	110.3	200	115.0	75	125	
55	Mn	45	308.944	1318007	0.42	104.1	200	102.4	75	125	
56	Fe	45	93033.269	566808351	1.05	85217.5	5000	156.3	75	125	Fail
59	Co	72	246.490	2240978	1.29	14.6	200	115.9	75	125	
60	Ni	72	255.034	623090	0.66	34.5	200	110.2	75	125	
63	Cu	72	236.205	1576163	1.07	18.3	200	108.9	75	125	
66	Zn	72	303.634	435441	0.35	97.1	200	103.3	75	125	
75	As	72	227.858	252152	0.57	22.9	200	102.5	75	125	
78	Se	72	216.518	17889	1.78	5.3	200	105.6	75	125	
88	Sr	115	279.850	1702829	0.71	44.8	200	117.5	75	125	
95	Mo	115	216.954	872841	0.61	2.7	200	107.1	75	125	
107	Ag	115	248.638	3115511	1.42	0.1	200	124.3	75	125	
111	Cd	115	214.388	446427	0.40	0.0	200	107.2	75	125	
118	Sn	115	228.841	1081827	0.66	6.5	200	111.2	75	125	
121	Sb	115	208.266	1576882	3.50	0.4	200	104.0	75	125	
137	Ba	115	452.683	1120026	0.47	227.6	200	112.5	75	125	
205	Tl	209	211.069	6492225	1.11	1.1	200	105.0	75	125	
208	Pb	209	252.319	10282134	1.31	35.6	200	108.4	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1449397	0.68	1522183	95.22	70	120	
72	Ge	1001786	0.14	1074520	93.23	70	120	
115	In	10537262	2.75	11514007	91.52	70	120	
209	Bi	21992889	0.61	22396997	98.20	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/29/2014 10:53	Sample Name	1405109-39A MS
Data Batch	140529.b	Comment	MS 6020A_S
Data File Name	046_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	198.113	10974	0.69	2.4	200	97.8	80	120	
11	B	45	166.853	7965	3.34	-17.8	200	92.3	80	120	
23	Na	45	1197.852	942388	1.02	158.1	1000	104.0	80	120	
24	Mg	45	6073.007	2377328	2.08	4466.0	1000	160.7	80	120	Fail
27	Al	45	########	24919711	1.20	104170.8	1000	1629.5	80	120	Fail
39	K	45	5963.435	2856649	2.30	3976.7	1000	198.7	80	120	Fail
44	Ca	45	2548.987	71848	1.51	1133.7	1000	141.5	80	120	Fail
47	Ti	45	433.465	73885	0.89	264.8	200	84.3	80	120	
51	V	45	378.955	2026580	0.29	174.4	200	102.3	80	120	
52	Cr	45	317.860	1984023	3.68	110.3	200	103.8	80	120	
55	Mn	45	299.394	1278131	0.61	104.1	200	97.6	80	120	
56	Fe	45	83190.996	507215802	0.78	85217.5	1000	-202.7	80	120	Fail
59	Co	72	231.288	2122718	2.77	14.6	200	108.3	80	120	
60	Ni	72	245.695	606043	1.47	34.5	200	105.6	80	120	
63	Cu	72	230.855	1555233	1.42	18.3	200	106.3	80	120	
66	Zn	72	301.848	436977	0.52	97.1	200	102.4	80	120	
75	As	72	203.866	227765	0.17	22.9	200	90.5	80	120	
78	Se	72	195.050	16276	1.73	5.3	200	94.9	80	120	
88	Sr	115	271.372	1657015	0.59	44.8	200	113.3	80	120	
95	Mo	115	200.978	811476	0.79	2.7	200	99.1	80	120	
107	Ag	115	210.011	2641760	0.85	0.1	200	105.0	80	120	
111	Cd	115	204.526	427448	1.23	0.0	200	102.2	80	120	
118	Sn	115	214.412	1017237	0.30	6.5	200	103.9	80	120	
121	Sb	115	56.866	432577	1.14	0.4	200	28.3	80	120	Fail
137	Ba	115	457.887	1137012	0.86	227.6	200	115.2	80	120	
205	Tl	209	198.991	6151026	2.48	1.1	200	99.0	80	120	
208	Pb	209	238.434	9764492	0.95	35.6	200	101.4	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1450905	2.47	1522183	95.32	70	120	
72	Ge	1011342	0.94	1074520	94.12	70	120	
115	In	10570685	0.89	11514007	91.81	70	120	
209	Bi	22101737	0.67	22396997	98.68	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/29/2014 10:55	Sample Name	1405109-39A MSD
Data Batch	140529.b	Comment	MSD 6020A_S
Data File Name	047_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	194.250	11076	1.68	2.4	200	95.9	80	120	
11	B	45	166.706	8201	0.89	-17.8	200	92.2	80	120	
23	Na	45	1168.591	948090	0.49	158.1	1000	101.0	80	120	
24	Mg	45	5842.525	2354467	1.27	4466.0	1000	137.7	80	120	Fail
27	Al	45	########	24459886	1.69	104170.8	1000	1065.9	80	120	Fail
39	K	45	5714.322	2820872	1.27	3976.7	1000	173.8	80	120	Fail
44	Ca	45	2449.844	71138	1.22	1133.7	1000	131.6	80	120	Fail
47	Ti	45	454.194	79710	1.44	264.8	200	94.7	80	120	
51	V	45	382.316	2106074	3.12	174.4	200	104.0	80	120	
52	Cr	45	317.199	2038909	2.03	110.3	200	103.5	80	120	
55	Mn	45	327.730	1440121	2.33	104.1	200	111.8	80	120	
56	Fe	45	83904.862	526688672	1.22	85217.5	1000	-131.3	80	120	Fail
59	Co	72	227.096	2133292	1.20	14.6	200	106.2	80	120	
60	Ni	72	240.980	608474	0.24	34.5	200	103.2	80	120	
63	Cu	72	227.804	1570771	0.88	18.3	200	104.7	80	120	
66	Zn	72	294.813	436890	0.58	97.1	200	98.9	80	120	
75	As	72	204.258	233596	0.39	22.9	200	90.7	80	120	
78	Se	72	197.944	16907	0.21	5.3	200	96.3	80	120	
88	Sr	115	260.794	1670769	3.50	44.8	200	108.0	80	120	
95	Mo	115	197.815	838017	1.14	2.7	200	97.5	80	120	
107	Ag	115	205.496	2711544	1.50	0.1	200	102.7	80	120	
111	Cd	115	198.686	435656	0.12	0.0	200	99.3	80	120	
118	Sn	115	212.796	1059243	1.47	6.5	200	103.1	80	120	
121	Sb	115	57.756	460881	0.43	0.4	200	28.7	80	120	Fail
137	Ba	115	429.767	1119603	0.77	227.6	200	101.1	80	120	
205	Tl	209	200.262	6248315	1.73	1.1	200	99.6	80	120	
208	Pb	209	239.047	9882183	2.04	35.6	200	101.7	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1493900	2.37	1522183	98.14	70	120	
72	Ge	1035260	1.11	1074520	96.35	70	120	
115	In	11091164	1.55	11514007	96.33	70	120	
209	Bi	22309626	1.64	22396997	99.61	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/29/2014 11:05	Sample Name	CCV1-140529
Data Batch	140529.b	Comment	CCV ICPMS_TW
Data File Name	052_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	192.496	10915	0.41	200	96.2	90	110	
11	B	45	181.641	8548	0.82	200	90.8	90	110	
23	Na	45	5064.289	3863285	2.05	5000	101.3	90	110	
24	Mg	45	4913.993	1969037	1.56	5000	98.3	90	110	
27	Al	45	4914.221	1040899	0.85	5000	98.3	90	110	
39	K	45	5055.670	2489368	0.96	5000	101.1	90	110	
44	Ca	45	5285.319	152279	1.17	5000	105.7	90	110	
47	Ti	45	213.936	37338	0.86	200	107.0	90	110	
51	V	45	197.466	1082159	0.68	200	98.7	90	110	
52	Cr	45	202.752	1296587	0.72	200	101.4	90	110	
55	Mn	45	193.997	847967	1.32	200	97.0	90	110	
56	Fe	45	5000.517	31224330	3.39	5000	100.0	90	110	
59	Co	72	214.054	2040267	2.05	200	107.0	90	110	
60	Ni	72	204.861	525066	0.23	200	102.4	90	110	
63	Cu	72	209.136	1463086	1.39	200	104.6	90	110	
66	Zn	72	198.968	299262	0.58	200	99.5	90	110	
75	As	72	192.820	223727	0.50	200	96.4	90	110	
78	Se	72	201.766	17481	1.50	200	100.9	90	110	
88	Sr	115	214.861	1356821	0.20	200	107.4	90	110	
95	Mo	115	216.867	905530	0.45	200	108.4	90	110	
107	Ag	115	210.443	2737426	0.43	200	105.2	90	110	
111	Cd	115	204.989	443131	0.79	200	102.5	90	110	
118	Sn	115	209.716	1028941	0.60	200	104.9	90	110	
121	Sb	115	199.164	1565700	2.01	200	99.6	90	110	
137	Ba	115	199.367	512046	0.27	200	99.7	90	110	
205	Tl	209	200.472	6139985	1.24	200	100.2	90	110	
208	Pb	209	205.375	8333394	0.14	200	102.7	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1484952	0.99	1522183	97.55	70	120	
72	Ge	1050258	0.95	1074520	97.74	70	120	
115	In	10935917	2.50	11514007	94.98	70	120	
209	Bi	21897107	0.39	22396997	97.77	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/29/2014 11:09	Sample Name	LCVL1-140529
Data Batch	140529.b	Comment	LCVLICPMS_TW
Data File Name	054LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.913	51	23.79	1	91.3	70	130	
11	B	45	-32.411	2822	0.45	20	-162.1	70	130	Fail
23	Na	45	128.439	158232	0.55	100	128.4	70	130	
24	Mg	45	109.826	43487	1.88	100	109.8	70	130	
27	Al	45	92.389	19271	2.32	100	92.4	70	130	
39	K	45	116.415	117146	0.61	100	116.4	70	130	
44	Ca	45	110.927	3355	2.39	100	110.9	70	130	
47	Ti	45	5.451	933	10.30	5	109.0	70	130	
51	V	45	0.987	7457	3.62	1	98.7	70	130	
52	Cr	45	5.077	34365	1.97	5	101.5	70	130	
55	Mn	45	4.864	20997	1.54	5	97.3	70	130	
56	Fe	45	93.053	581429	0.34	100	93.1	70	130	
59	Co	72	4.992	48141	0.61	5	99.8	70	130	
60	Ni	72	4.681	13913	1.19	5	93.6	70	130	
63	Cu	72	5.015	36699	1.72	5	100.3	70	130	
66	Zn	72	4.765	7575	3.45	5	95.3	70	130	
75	As	72	4.659	5663	0.67	5	93.2	70	130	
78	Se	72	5.389	560	7.28	5	107.8	70	130	
88	Sr	115	4.928	31732	2.15	5	98.6	70	130	
95	Mo	115	4.754	20231	1.41	5	95.1	70	130	
107	Ag	115	1.871	24755	1.47	2	93.6	70	130	
111	Cd	115	1.029	2314	8.49	1	102.9	70	130	
118	Sn	115	4.942	25493	0.57	5	98.8	70	130	
121	Sb	115	1.727	14082	1.16	2	86.4	70	130	
137	Ba	115	4.663	12236	4.26	5	93.3	70	130	
205	Tl	209	0.974	30608	1.01	1	97.4	70	130	
208	Pb	209	1.045	46854	0.67	1	104.5	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1443714	3.17	1522183	94.84	70	120	
72	Ge	1057001	0.24	1074520	98.37	70	120	
115	In	11112068	1.89	11514007	96.51	70	120	
209	Bi	22043389	1.13	22396997	98.42	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/29/2014 11:11	Sample Name	CCB1-140529
Data Batch	140529.b	Comment	CCB ICPMS_TW
Data File Name	055_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.035	3	94.4	0.4	0.3	
11	B	45	-45.183	2601	3.0	10	10	
23	Na	45	13.285	77472	1.2	50	100	
24	Mg	45	-1.244	291	10.9	50	100	
27	Al	45	0.121	309	12.6	50	10	
39	K	45	3.341	67189	1.4	50	100	
44	Ca	45	-1.095	236	19.8	50	100	
47	Ti	45	-0.013	9	21.6	4	3	
51	V	45	0.011	2360	3.0	4	3	
52	Cr	45	-0.139	2133	7.5	2	2	
55	Mn	45	-0.015	300	5.1	2	3	
56	Fe	45	-0.028	17663	1.4	50	50	
59	Co	72	-0.006	203	9.1	2	3	
60	Ni	72	-0.371	938	7.0	2	3	
63	Cu	72	0.021	1580	9.4	2	2	
66	Zn	72	-0.009	362	3.8	4	2	
75	As	72	-0.025	201	5.7	2	2	
78	Se	72	0.152	107	13.8	1	2	
88	Sr	115	0.005	132	25.3	4	3	
95	Mo	115	0.007	87	29.0	2	2	
107	Ag	115	0.019	280	13.3	0.4	1	
111	Cd	115	0.002	57	27.0	0.4	0.3	
118	Sn	115	0.017	969	5.5	4	3	
121	Sb	115	0.003	310	9.7	2	0.8	
137	Ba	115	0.005	76	31.0	2	3	
205	Tl	209	0.020	1209	3.4	2	0.5	
208	Pb	209	0.049	6258	3.9	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1503893	0.26	1522183	98.80	70	120	
72	Ge	1068595	0.71	1074520	99.45	70	120	
115	In	11290470	0.31	11514007	98.06	70	120	
209	Bi	22269404	1.09	22396997	99.43	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/29/2014 11:32	Sample Name	CCV2-140529
Data Batch	140529.b	Comment	CCV ICPMS_TW
Data File Name	066_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	192.775	10631	1.90	200	96.4	90	110	
11	B	45	174.133	8123	3.53	200	87.1	90	110	Fail
23	Na	45	4886.105	3628305	1.52	5000	97.7	90	110	
24	Mg	45	4966.257	1935004	1.60	5000	99.3	90	110	
27	Al	45	4978.209	1025517	0.39	5000	99.6	90	110	
39	K	45	5146.153	2463553	0.48	5000	102.9	90	110	
44	Ca	45	5500.249	154117	0.58	5000	110.0	90	110	Fail
47	Ti	45	212.893	36142	1.12	200	106.4	90	110	
51	V	45	195.915	1044398	0.51	200	98.0	90	110	
52	Cr	45	200.228	1245493	0.70	200	100.1	90	110	
55	Mn	45	194.646	827622	0.74	200	97.3	90	110	
56	Fe	45	4987.616	30290692	2.66	5000	99.8	90	110	
59	Co	72	207.928	1927306	1.67	200	104.0	90	110	
60	Ni	72	201.805	503031	0.85	200	100.9	90	110	
63	Cu	72	201.859	1373390	0.49	200	100.9	90	110	
66	Zn	72	196.270	287084	1.51	200	98.1	90	110	
75	As	72	192.380	217072	0.19	200	96.2	90	110	
78	Se	72	200.802	16920	1.32	200	100.4	90	110	
88	Sr	115	211.632	1317574	0.21	200	105.8	90	110	
95	Mo	115	209.211	861284	0.38	200	104.6	90	110	
107	Ag	115	199.892	2563691	2.22	200	99.9	90	110	
111	Cd	115	197.724	421318	0.76	200	98.9	90	110	
118	Sn	115	206.724	1000025	0.20	200	103.4	90	110	
121	Sb	115	194.464	1507385	0.90	200	97.2	90	110	
137	Ba	115	198.229	501967	0.76	200	99.1	90	110	
205	Tl	209	195.496	5813518	0.29	200	97.7	90	110	
208	Pb	209	201.806	7950776	0.25	200	100.9	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1444577	1.91	1522183	94.90	70	120	
72	Ge	1021301	0.39	1074520	95.05	70	120	
115	In	10778916	1.54	11514007	93.62	70	120	
209	Bi	21263780	1.38	22396997	94.94	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/29/2014 11:35	Sample Name	LCVL2-140529
Data Batch	140529.b	Comment	LCVLICPMS_TW
Data File Name	068LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.967	56	20.80	1	96.7	70	130	
11	B	45	-29.289	3038	5.29	20	-146.4	70	130	Fail
23	Na	45	99.901	143916	0.91	100	99.9	70	130	
24	Mg	45	106.103	44039	1.44	100	106.1	70	130	
27	Al	45	91.248	19943	0.26	100	91.2	70	130	
39	K	45	104.577	116891	0.72	100	104.6	70	130	
44	Ca	45	125.107	3932	6.43	100	125.1	70	130	
47	Ti	45	4.889	879	7.68	5	97.8	70	130	
51	V	45	0.999	7869	1.24	1	99.9	70	130	
52	Cr	45	4.835	34423	1.04	5	96.7	70	130	
55	Mn	45	4.647	21024	1.55	5	92.9	70	130	
56	Fe	45	89.064	583540	0.59	100	89.1	70	130	
59	Co	72	4.960	48041	0.93	5	99.2	70	130	
60	Ni	72	4.600	13764	0.21	5	92.0	70	130	
63	Cu	72	4.996	36722	2.07	5	99.9	70	130	
66	Zn	72	4.675	7471	0.49	5	93.5	70	130	
75	As	72	4.603	5622	1.68	5	92.1	70	130	
78	Se	72	4.865	516	2.20	5	97.3	70	130	
88	Sr	115	4.901	32200	0.65	5	98.0	70	130	
95	Mo	115	4.696	20395	1.97	5	93.9	70	130	
107	Ag	115	1.808	24416	1.34	2	90.4	70	130	
111	Cd	115	0.986	2262	8.22	1	98.6	70	130	
118	Sn	115	4.932	25972	1.77	5	98.6	70	130	
121	Sb	115	1.706	14199	1.75	2	85.3	70	130	
137	Ba	115	4.708	12599	2.55	5	94.2	70	130	
205	Tl	209	0.974	30647	0.18	1	97.4	70	130	
208	Pb	209	0.997	44984	2.32	1	99.7	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1511067	1.56	1522183	99.27	70	120	
72	Ge	1061599	1.10	1074520	98.80	70	120	
115	In	11339893	1.55	11514007	98.49	70	120	
209	Bi	22075627	1.37	22396997	98.57	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/29/2014 11:37	Sample Name	CCB2-140529
Data Batch	140529.b	Comment	CCB ICPMS_TW
Data File Name	069_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.017	2	91.7	0.4	0.3	
11	B	45	-40.157	2764	6.0	10	10	
23	Na	45	-7.649	62186	0.8	50	100	
24	Mg	45	-1.222	303	11.2	50	100	
27	Al	45	0.094	307	19.0	50	10	
39	K	45	0.535	66479	0.7	50	100	
44	Ca	45	15.049	713	13.8	50	100	
47	Ti	45	-0.044	3	100.1	4	3	
51	V	45	0.066	2691	3.5	4	3	
52	Cr	45	-0.151	2071	6.5	2	2	
55	Mn	45	-0.009	328	9.4	2	3	
56	Fe	45	-0.275	16264	3.2	50	50	
59	Co	72	-0.009	179	22.2	2	3	
60	Ni	72	-0.403	860	6.6	2	3	
63	Cu	72	-0.030	1227	5.7	2	2	
66	Zn	72	0.013	398	10.8	4	2	
75	As	72	-0.024	204	9.5	2	2	
78	Se	72	0.236	115	1.7	1	2	
88	Sr	115	0.020	231	14.6	4	3	
95	Mo	115	0.000	57	36.7	2	2	
107	Ag	115	0.015	218	4.4	0.4	1	
111	Cd	115	-0.005	41	69.0	0.4	0.3	
118	Sn	115	0.005	908	1.7	4	3	
121	Sb	115	-0.014	171	15.6	2	0.8	
137	Ba	115	0.053	201	17.7	2	3	
205	Tl	209	0.012	953	11.6	2	0.5	
208	Pb	209	0.019	5029	4.9	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1519244	1.79	1522183	99.81	70	120	
72	Ge	1075892	0.56	1074520	100.13	70	120	
115	In	11279489	1.27	11514007	97.96	70	120	
209	Bi	22197934	1.75	22396997	99.11	70	120	

Dilution Sample (Dil) Report

Date Acquired	5/29/2014 11:41	Sample Name	1405109-39A SD
Data Batch	140529.b	Comment	SD 6020A_S
Data File Name	071_SD.d	Dilution	250

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
9	Be	45	0.058	4	25.00	0.1	220.0	110	90	
11	B	45	-49.573	2504	1.73	-48.0	516.0	110	90	
23	Na	45	-4.143	64725	1.31	4.1	-505.6	110	90	
24	Mg	45	84.746	35449	1.22	409.4	103.5	110	90	Good
27	Al	45	1984.171	429078	0.85	10016.6	99.0	110	90	Good
39	K	45	73.171	101883	1.04	365.8	100.0	110	90	Good
44	Ca	45	36.048	1328	9.86	120.0	150.2	110	90	
47	Ti	45	5.322	959	7.66	24.4	109.3	110	90	Good
51	V	45	3.329	20899	1.59	16.2	102.8	110	90	Good
52	Cr	45	1.906	15465	1.05	10.1	93.9	110	90	Good
55	Mn	45	2.021	9377	3.56	9.9	102.5	110	90	Good
56	Fe	45	1656.280	10570408	1.26	8200.7	101.0	110	90	Good
59	Co	72	0.255	2672	5.55	1.3	94.3	110	90	Good
60	Ni	72	0.256	2514	2.01	2.8	45.5	110	90	
63	Cu	72	0.574	5398	2.91	1.7	170.7	110	90	
66	Zn	72	1.871	3168	3.66	9.4	99.8	110	90	Good
75	As	72	0.410	699	6.20	2.1	95.8	110	90	Good
78	Se	72	0.337	120	16.41	0.7	246.6	110	90	
88	Sr	115	0.863	5640	1.42	4.1	104.1	110	90	Good
95	Mo	115	0.050	266	32.50	0.2	100.5	110	90	Good
107	Ag	115	0.012	183	4.81	0.0	329.0	110	90	
111	Cd	115	-0.003	44	38.48	0.0	925.2	110	90	
118	Sn	115	0.103	1388	13.12	0.5	100.5	110	90	Good
121	Sb	115	-0.015	159	7.94	0.0	-441.7	110	90	
137	Ba	115	4.210	11051	0.35	20.7	101.9	110	90	Good
205	Tl	209	0.024	1313	9.06	0.1	122.7	110	90	
208	Pb	209	0.681	31622	1.78	3.3	104.0	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1515764	1.53	1522183	99.58	70	120	
72	Ge	1046308	0.41	1074520	97.37	70	120	
115	In	11115655	1.78	11514007	96.54	70	120	
209	Bi	21771517	1.23	22396997	97.21	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	5/29/2014 11:57	Sample Name	1405109-39A PDS
Data Batch	140529.b	Comment	PDS 6020A_S
Data File Name	079_PDS.d	Dilution	50

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	202.573	11318	1.89	0.1	200	101.2	75	125	
11	B	45	146.014	7501	1.45	-48.0	200	97.0	75	125	
23	Na	45	5375.265	4037109	1.07	4.1	5000	107.4	75	125	
24	Mg	45	5966.764	2355643	2.13	409.4	5000	111.1	75	125	
27	Al	45	14885.429	3106826	2.57	10016.6	5000	97.4	75	125	
39	K	45	5998.761	2898581	1.83	365.8	5000	112.7	75	125	
44	Ca	45	5332.770	151385	1.66	120.0	5000	104.3	75	125	
47	Ti	45	232.583	40013	1.47	24.4	200	104.1	75	125	
51	V	45	215.828	1165651	0.62	16.2	200	99.8	75	125	
52	Cr	45	223.930	1411577	3.54	10.1	200	106.9	75	125	
55	Mn	45	208.841	899645	0.73	9.9	200	99.5	75	125	
56	Fe	45	13351.280	82137459	2.91	8200.7	5000	103.0	75	125	
59	Co	72	222.084	2074698	1.03	1.3	200	110.4	75	125	
60	Ni	72	210.995	529925	0.71	2.8	200	104.1	75	125	
63	Cu	72	206.655	1417043	0.39	1.7	200	102.5	75	125	
66	Zn	72	203.558	300028	0.90	9.4	200	97.1	75	125	
75	As	72	196.655	223623	0.15	2.1	200	97.3	75	125	
78	Se	72	204.421	17356	1.62	0.7	200	101.9	75	125	
88	Sr	115	213.016	1320980	0.20	4.1	200	104.4	75	125	
95	Mo	115	200.629	822690	0.19	0.2	200	100.2	75	125	
107	Ag	115	245.957	3142165	1.36	0.0	200	123.0	75	125	
111	Cd	115	205.585	436377	1.28	0.0	200	102.8	75	125	
118	Sn	115	210.821	1015832	0.55	0.5	200	105.2	75	125	
121	Sb	115	188.877	1458502	0.65	0.0	200	94.4	75	125	
137	Ba	115	224.935	567275	1.25	20.7	200	102.1	75	125	
205	Tl	209	202.556	6059666	0.37	0.1	200	101.2	75	125	
208	Pb	209	211.542	8384094	0.05	3.3	200	104.1	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1464038	2.43	1522183	96.18	70	120	
72	Ge	1029403	1.35	1074520	95.80	70	120	
115	In	10735342	0.79	11514007	93.24	70	120	
209	Bi	21390596	1.32	22396997	95.51	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/29/2014 11:59	Sample Name	CCV3-140529
Data Batch	140529.b	Comment	CCV ICPMS_TW
Data File Name	080_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	189.283	10942	1.03	200	94.6	90	110	
11	B	45	186.134	8832	3.24	200	93.1	90	110	
23	Na	45	4790.288	3729042	1.20	5000	95.8	90	110	
24	Mg	45	4969.053	2029630	0.80	5000	99.4	90	110	
27	Al	45	4935.841	1065729	0.59	5000	98.7	90	110	
39	K	45	4943.216	2482393	1.54	5000	98.9	90	110	
44	Ca	45	5223.831	153421	0.20	5000	104.5	90	110	
47	Ti	45	206.969	36823	2.86	200	103.5	90	110	
51	V	45	192.120	1073390	0.25	200	96.1	90	110	
52	Cr	45	196.176	1278983	1.05	200	98.1	90	110	
55	Mn	45	189.168	842970	0.75	200	94.6	90	110	
56	Fe	45	4827.690	30740231	2.26	5000	96.6	90	110	
59	Co	72	211.164	2007564	1.81	200	105.6	90	110	
60	Ni	72	202.618	518011	0.73	200	101.3	90	110	
63	Cu	72	200.943	1402368	0.53	200	100.5	90	110	
66	Zn	72	196.390	294648	0.40	200	98.2	90	110	
75	As	72	191.348	221461	0.69	200	95.7	90	110	
78	Se	72	202.738	17521	1.17	200	101.4	90	110	
88	Sr	115	213.507	1347580	0.48	200	106.8	90	110	
95	Mo	115	213.038	889087	0.40	200	106.5	90	110	
107	Ag	115	206.786	2688543	0.77	200	103.4	90	110	
111	Cd	115	199.645	431367	1.42	200	99.8	90	110	
118	Sn	115	208.690	1023395	0.72	200	104.3	90	110	
121	Sb	115	194.600	1529329	0.79	200	97.3	90	110	
137	Ba	115	199.747	512753	1.38	200	99.9	90	110	
205	Tl	209	197.438	6015591	1.15	200	98.7	90	110	
208	Pb	209	203.232	8203699	0.15	200	101.6	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1513738	0.99	1522183	99.45	70	120	
72	Ge	1047609	0.82	1074520	97.50	70	120	
115	In	10928037	1.63	11514007	94.91	70	120	
209	Bi	21783313	0.34	22396997	97.26	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/29/2014 12:02	Sample Name	LCVL3-140529
Data Batch	140529.b	Comment	LCVLICPMS_TW
Data File Name	082LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	1.081	62	18.60	1	108.1	70	130	
11	B	45	-33.879	2866	4.48	20	-169.4	70	130	Fail
23	Na	45	97.846	139877	0.13	100	97.8	70	130	
24	Mg	45	105.438	43011	1.12	100	105.4	70	130	
27	Al	45	94.209	20229	1.92	100	94.2	70	130	
39	K	45	105.617	115367	0.77	100	105.6	70	130	
44	Ca	45	106.841	3337	4.60	100	106.8	70	130	
47	Ti	45	4.750	840	5.56	5	95.0	70	130	
51	V	45	0.975	7604	1.49	1	97.5	70	130	
52	Cr	45	4.734	33193	1.07	5	94.7	70	130	
55	Mn	45	4.570	20326	1.09	5	91.4	70	130	
56	Fe	45	87.113	561304	0.23	100	87.1	70	130	
59	Co	72	4.886	46712	1.40	5	97.7	70	130	
60	Ni	72	4.756	13986	6.04	5	95.1	70	130	
63	Cu	72	4.898	35560	0.08	5	98.0	70	130	
66	Zn	72	4.559	7202	1.21	5	91.2	70	130	
75	As	72	4.468	5394	1.68	5	89.4	70	130	
78	Se	72	5.032	524	3.67	5	100.6	70	130	
88	Sr	115	4.848	30880	1.02	5	97.0	70	130	
95	Mo	115	4.740	19958	0.85	5	94.8	70	130	
107	Ag	115	1.819	23810	0.97	2	90.9	70	130	
111	Cd	115	0.994	2211	4.86	1	99.4	70	130	
118	Sn	115	4.893	24990	1.53	5	97.9	70	130	
121	Sb	115	1.762	14211	0.97	2	88.1	70	130	
137	Ba	115	4.759	12350	1.02	5	95.2	70	130	
205	Tl	209	0.955	29654	1.17	1	95.5	70	130	
208	Pb	209	0.992	44158	1.02	1	99.2	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1484880	1.38	1522183	97.55	70	120	
72	Ge	1047851	0.22	1074520	97.52	70	120	
115	In	10994381	1.22	11514007	95.49	70	120	
209	Bi	21766930	0.67	22396997	97.19	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/29/2014 12:04	Sample Name	CCB3-140529
Data Batch	140529.b	Comment	CCB ICPMS_TW
Data File Name	083_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.001	1	86.6	0.4	0.3	
11	B	45	-59.989	2139	1.3	10	10	
23	Na	45	-6.070	60855	1.1	50	100	
24	Mg	45	-1.485	188	11.4	50	100	
27	Al	45	-0.365	198	21.1	50	10	
39	K	45	3.237	65093	0.5	50	100	
44	Ca	45	2.177	321	22.0	50	100	
47	Ti	45	-0.003	10	88.2	4	3	
51	V	45	0.033	2414	7.6	4	3	
52	Cr	45	-0.150	2001	7.4	2	2	
55	Mn	45	-0.017	282	4.8	2	3	
56	Fe	45	-0.701	12993	0.8	50	50	
59	Co	72	-0.008	183	22.8	2	3	
60	Ni	72	-0.399	849	8.9	2	3	
63	Cu	72	-0.046	1082	6.3	2	2	
66	Zn	72	-0.047	298	11.9	4	2	
75	As	72	-0.027	195	5.8	2	2	
78	Se	72	0.259	114	10.3	1	2	
88	Sr	115	0.011	168	11.3	4	3	
95	Mo	115	0.006	78	22.0	2	2	
107	Ag	115	0.013	188	3.7	0.4	1	
111	Cd	115	-0.002	44	17.3	0.4	0.3	
118	Sn	115	-0.025	734	14.4	4	3	
121	Sb	115	0.019	430	4.0	2	0.8	
137	Ba	115	0.019	108	21.7	2	3	
205	Tl	209	0.016	1034	7.7	2	0.5	
208	Pb	209	0.023	4995	2.5	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1459478	3.52	1522183	95.88	70	120	
72	Ge	1047925	0.53	1074520	97.52	70	120	
115	In	10968365	0.19	11514007	95.26	70	120	
209	Bi	21356615	1.34	22396997	95.35	70	120	

Method Blank Report

Date Acquired	5/29/14 12:06 PM	Sample Name	MB-63830
Data Batch	140529.b	Comment	MBLK6020A_W
Data File Name	084_LRB.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.030	2	24.74		
11	B	45	-68.620	1960	1.96		
23	Na	45	-3.186	64452	1.24		
24	Mg	45	1.110	1237	12.14		
27	Al	45	2.505	813	12.44		
39	K	45	1.756	65899	1.05		
44	Ca	45	5.818	433	5.38		
47	Ti	45	0.001	11	86.60		
51	V	45	0.051	2566	2.75		
52	Cr	45	-0.150	2042	2.32		
55	Mn	45	-0.011	316	13.04		
56	Fe	45	-0.424	15037	2.61		
59	Co	72	-0.011	149	12.33		
60	Ni	72	-0.402	847	11.16		
63	Cu	72	0.042	1708	1.66		
66	Zn	72	0.375	938	9.93		
75	As	72	-0.035	187	4.01		
78	Se	72	0.347	122	8.80		
88	Sr	115	0.023	246	10.89		
95	Mo	115	0.000	56	24.98		
107	Ag	115	0.010	161	4.31		
111	Cd	115	-0.011	26	45.82		
118	Sn	115	-0.029	732	9.57		
121	Sb	115	0.014	396	9.32		
137	Ba	115	0.016	102	6.79		
205	Tl	209	0.008	836	10.28		
208	Pb	209	0.015	4810	1.27		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1492144	0.95	1522183	98.03	70	120	
72	Ge	1055717	0.37	1074520	98.25	70	120	
115	In	11190499	0.61	11514007	97.19	70	120	
209	Bi	21950925	0.42	22396997	98.01	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/29/2014 12:08	Sample Name	LCS-63830
Data Batch	140529.b	Comment	LCS 6020A_W
Data File Name	085_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	187.916	10401	1.00	200	187.9	80	120	
11	B	45	139.376	7258	3.53	200	139.4	80	120	
23	Na	45	5010.263	3732701	0.61	5000	5010.3	80	120	
24	Mg	45	4965.319	1942395	0.82	5000	4965.3	80	120	
27	Al	45	4817.841	996369	1.24	5000	4817.8	80	120	
39	K	45	5119.528	2460748	1.79	5000	5119.5	80	120	
44	Ca	45	4833.279	135949	0.25	5000	4833.3	80	120	
47	Ti	45	206.204	35127	0.78	200	206.2	80	120	
51	V	45	190.550	1019363	0.75	200	190.6	80	120	
52	Cr	45	196.110	1224398	0.39	200	196.1	80	120	
55	Mn	45	187.416	799776	0.67	200	187.4	80	120	
56	Fe	45	4845.508	29540637	0.45	5000	4845.5	80	120	
59	Co	72	206.361	1904362	1.84	200	206.4	80	120	
60	Ni	72	197.230	489502	0.17	200	197.2	80	120	
63	Cu	72	196.539	1331368	0.53	200	196.5	80	120	
66	Zn	72	186.648	271824	0.31	200	186.6	80	120	
75	As	72	186.890	209959	0.30	200	186.9	80	120	
78	Se	72	195.310	16387	1.74	200	195.3	80	120	
88	Sr	115	209.087	1270338	0.70	200	209.1	80	120	
95	Mo	115	209.887	843254	0.63	200	209.9	80	120	
107	Ag	115	205.429	2571502	1.33	200	205.4	80	120	
111	Cd	115	198.195	412185	0.16	200	198.2	80	120	
118	Sn	115	203.256	959635	0.55	200	203.3	80	120	
121	Sb	115	192.577	1456960	0.55	200	192.6	80	120	
137	Ba	115	194.123	479730	0.77	200	194.1	80	120	
205	Tl	209	191.031	5686966	0.97	200	191.0	80	120	
208	Pb	209	196.163	7736989	0.45	200	196.2	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1450504	3.17	1522183	95.29	70	120	
72	Ge	1016820	0.27	1074520	94.63	70	120	
115	In	10518602	1.05	11514007	91.35	70	120	
209	Bi	21288079	1.69	22396997	95.05	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/29/2014 12:10	Sample Name	LCSD-63830
Data Batch	140529.b	Comment	LCSD6020A_W
Data File Name	086_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	189.107	10344	1.45	200	189.1	80	120	
11	B	45	132.944	7004	3.41	200	132.9	80	120	
23	Na	45	4952.205	3645582	2.09	5000	4952.2	80	120	
24	Mg	45	4936.443	1907422	2.91	5000	4936.4	80	120	
27	Al	45	4818.058	984124	0.41	5000	4818.1	80	120	
39	K	45	5210.831	2472158	1.14	5000	5210.8	80	120	
44	Ca	45	4794.672	133260	1.06	5000	4794.7	80	120	
47	Ti	45	208.918	35159	1.61	200	208.9	80	120	
51	V	45	189.584	1002161	0.51	200	189.6	80	120	
52	Cr	45	195.358	1204866	0.30	200	195.4	80	120	
55	Mn	45	190.656	803828	0.60	200	190.7	80	120	
56	Fe	45	4902.291	29529409	0.55	5000	4902.3	80	120	
59	Co	72	209.021	1911804	3.51	200	209.0	80	120	
60	Ni	72	198.036	487109	0.09	200	198.0	80	120	
63	Cu	72	197.511	1325992	0.42	200	197.5	80	120	
66	Zn	72	187.420	270503	0.64	200	187.4	80	120	
75	As	72	187.524	208791	0.19	200	187.5	80	120	
78	Se	72	195.383	16246	1.02	200	195.4	80	120	
88	Sr	115	208.705	1259806	1.04	200	208.7	80	120	
95	Mo	115	209.775	837276	1.20	200	209.8	80	120	
107	Ag	115	207.365	2578685	2.66	200	207.4	80	120	
111	Cd	115	196.556	406107	0.38	200	196.6	80	120	
118	Sn	115	207.019	970974	1.01	200	207.0	80	120	
121	Sb	115	195.597	1470132	0.58	200	195.6	80	120	
137	Ba	115	195.300	479470	0.24	200	195.3	80	120	
205	Tl	209	195.094	5774175	2.62	200	195.1	80	120	
208	Pb	209	195.270	7656603	0.51	200	195.3	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1432609	2.51	1522183	94.12	70	120	
72	Ge	1007777	0.78	1074520	93.79	70	120	
115	In	10449278	0.30	11514007	90.75	70	120	
209	Bi	21159520	0.81	22396997	94.47	70	120	

Sample Report

Date Acquired	5/29/14 12:14 PM	Sample Name	1405261-03A
Data Batch	140529.b	Comment	SAMP6020A_W
Data File Name	088_ARF.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.013	1	86.60	2000	
11	B	45	-20.426	3108	1.56	2000	
23	Na	45	4721.880	3481114	3.40	25000	>RL
24	Mg	45	5220.297	2018264	1.73	25000	>RL
27	Al	45	16.468	3635	5.53	10000	
39	K	45	2014.133	994559	1.06	25000	>RL
44	Ca	45	111858.824	3104448	0.18	10000	OUTCAL
47	Ti	45	0.129	32	41.80	2000	
51	V	45	1.086	7924	1.17	2000	
52	Cr	45	0.294	4694	0.50	2000	
55	Mn	45	43.671	184474	0.82	2000	>RL
56	Fe	45	14.481	104212	0.31	10000	
59	Co	72	0.295	2985	7.51	2000	
60	Ni	72	0.130	2145	4.27	2000	
63	Cu	72	1.605	12307	2.21	2000	
66	Zn	72	1.145	2036	7.59	2000	
75	As	72	5.955	6947	1.43	2000	>RL
78	Se	72	0.427	125	16.90	2000	
88	Sr	115	203.126	1261438	0.25	2000	>RL
95	Mo	115	11.110	45672	0.83	2000	>RL
107	Ag	115	0.028	373	12.27	500	
111	Cd	115	0.020	92	31.58	2000	
118	Sn	115	0.012	901	5.81	2000	
121	Sb	115	309.328	2391677	1.81	500	>RL
137	Ba	115	60.883	153813	0.46	2000	>RL
205	Tl	209	0.049	1987	7.87	2000	
208	Pb	209	0.116	8450	1.22	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1432824	0.96	1522183	94.13	70	120	
72	Ge	1023447	0.31	1074520	95.25	70	120	
115	In	10750121	0.25	11514007	93.37	70	120	
209	Bi	20807160	0.71	22396997	92.90	70	120	

Dilution Sample (Dil) Report

Date Acquired	5/29/2014 12:16	Sample Name	1405261-03A SD
Data Batch	140529.b	Comment	SD 6020A_W
Data File Name	089_SD.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
9	Be	45	0.024	2	100.00	0.0	914.9	110	90	
11	B	45	-58.925	2208	0.49	-20.4	1442.4	110	90	
23	Na	45	950.879	780151	0.35	4721.9	100.7	110	90	Good
24	Mg	45	1045.701	419958	0.65	5220.3	100.2	110	90	Good
27	Al	45	3.364	992	10.66	16.5	102.1	110	90	Good
39	K	45	401.916	257705	0.26	2014.1	99.8	110	90	Good
44	Ca	45	21227.079	611282	0.61	111858.8	94.9	110	90	Good
47	Ti	45	-0.018	8	107.84	0.1	-71.3	110	90	
51	V	45	0.244	3612	3.66	1.1	112.5	110	90	
52	Cr	45	-0.058	2624	1.80	0.3	-98.4	110	90	
55	Mn	45	8.604	37988	1.16	43.7	98.5	110	90	Good
56	Fe	45	2.424	32769	1.74	14.5	83.7	110	90	
59	Co	72	0.061	848	2.24	0.3	104.1	110	90	Good
60	Ni	72	-0.302	1106	7.07	0.1	#####	110	90	
63	Cu	72	0.265	3286	3.96	1.6	82.5	110	90	
66	Zn	72	0.188	657	2.83	1.1	82.1	110	90	
75	As	72	1.131	1551	2.15	6.0	95.0	110	90	Good
78	Se	72	0.341	122	14.95	0.4	398.7	110	90	
88	Sr	115	40.877	260893	0.62	203.1	100.6	110	90	Good
95	Mo	115	2.273	9643	5.68	11.1	102.3	110	90	Good
107	Ag	115	0.026	361	6.15	0.0	469.2	110	90	
111	Cd	115	0.000	51	33.46	0.0	11.3	110	90	
118	Sn	115	-0.036	689	3.91	0.0	#####	110	90	
121	Sb	115	58.363	463860	0.96	309.3	94.3	110	90	Good
137	Ba	115	12.458	32388	1.63	60.9	102.3	110	90	Good
205	Tl	209	0.026	1369	6.65	0.0	264.2	110	90	
208	Pb	209	0.036	5599	7.24	0.1	155.3	110	90	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1486151	0.53	1522183	97.63	70	120	
72	Ge	1059123	1.20	1074520	98.57	70	120	
115	In	11045348	0.98	11514007	95.93	70	120	
209	Bi	21716351	0.74	22396997	96.96	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	5/29/2014 12:35	Sample Name	1405261-03A PDS
Data Batch	140529.b	Comment	PDS 6020A_W
Data File Name	099_PDS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	197.453	10578	0.73	0.0	200	98.7	75	125	
11	B	45	177.071	7965	2.32	-20.4	200	98.7	75	125	
23	Na	45	9685.365	6923763	1.85	4721.9	5000	99.3	75	125	
24	Mg	45	9873.445	3737376	2.25	5220.3	5000	93.1	75	125	
27	Al	45	4682.563	937062	0.42	16.5	5000	93.3	75	125	
39	K	45	7326.897	3380920	1.44	2014.1	5000	106.3	75	125	
44	Ca	45	########	2909743	1.16	111858.8	5000	-96.0	75	125	Fail
47	Ti	45	204.284	33677	1.51	0.1	200	102.1	75	125	
51	V	45	197.188	1020852	0.73	1.1	200	98.1	75	125	
52	Cr	45	201.637	1218179	0.52	0.3	200	100.7	75	125	
55	Mn	45	234.920	969934	0.85	43.7	200	95.6	75	125	
56	Fe	45	4603.901	27159871	0.95	14.5	5000	91.8	75	125	
59	Co	72	207.773	1867080	1.22	0.3	200	103.7	75	125	
60	Ni	72	198.830	480516	0.29	0.1	200	99.4	75	125	
63	Cu	72	194.782	1284903	0.13	1.6	200	96.6	75	125	
66	Zn	72	185.833	263539	0.48	1.1	200	92.3	75	125	
75	As	72	197.665	216229	0.32	6.0	200	95.9	75	125	
78	Se	72	198.263	16199	1.10	0.4	200	98.9	75	125	
88	Sr	115	415.426	2492201	2.21	203.1	200	106.1	75	125	
95	Mo	115	209.539	831227	0.11	11.1	200	99.2	75	125	
107	Ag	115	194.495	2404034	1.36	0.0	200	97.2	75	125	
111	Cd	115	199.653	410007	0.74	0.0	200	99.8	75	125	
118	Sn	115	207.032	965146	0.85	0.0	200	103.5	75	125	
121	Sb	115	480.285	3586830	1.74	309.3	200	85.5	75	125	
137	Ba	115	256.835	626627	0.58	60.9	200	98.0	75	125	
205	Tl	209	199.848	5814704	1.42	0.0	200	99.9	75	125	
208	Pb	209	205.884	7935842	0.08	0.1	200	102.9	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1403920	3.47	1522183	92.23	70	120	
72	Ge	990185	0.68	1074520	92.15	70	120	
115	In	10386863	1.49	11514007	90.21	70	120	
209	Bi	20802730	1.18	22396997	92.88	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/29/2014 12:37	Sample Name	1405261-03A MS
Data Batch	140529.b	Comment	MS 6020A_W
Data File Name	100_MSS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	191.181	9988	1.60	0.0	200	95.6	80	120	
11	B	45	194.515	8192	2.75	-20.4	200	107.5	80	120	
23	Na	45	9522.798	6640522	0.76	4721.9	1000	480.1	80	120	Fail
24	Mg	45	10019.300	3699603	2.51	5220.3	1000	479.9	80	120	Fail
27	Al	45	4866.298	949769	0.69	16.5	1000	485.0	80	120	Fail
39	K	45	7081.917	3189047	1.95	2014.1	1000	506.8	80	120	Fail
44	Ca	45	########	2943452	1.23	111858.8	1000	-81.1	80	120	Fail
47	Ti	45	212.381	34160	1.77	0.1	200	106.1	80	120	
51	V	45	198.740	1003548	0.39	1.1	200	98.8	80	120	
52	Cr	45	198.092	1167089	0.85	0.3	200	98.9	80	120	
55	Mn	45	232.930	938190	1.31	43.7	200	94.6	80	120	
56	Fe	45	4976.942	28641287	0.39	14.5	1000	496.2	80	120	Fail
59	Co	72	202.955	1817314	1.59	0.3	200	101.3	80	120	
60	Ni	72	192.246	463019	0.31	0.1	200	96.1	80	120	
63	Cu	72	190.567	1252660	0.07	1.6	200	94.5	80	120	
66	Zn	72	182.824	258359	0.53	1.1	200	90.8	80	120	
75	As	72	194.014	211492	0.80	6.0	200	94.0	80	120	
78	Se	72	195.671	15931	0.77	0.4	200	97.6	80	120	
88	Sr	115	422.626	2493976	1.24	203.1	200	109.7	80	120	
95	Mo	115	223.143	870749	0.47	11.1	200	106.0	80	120	
107	Ag	115	202.362	2460163	0.34	0.0	200	101.2	80	120	
111	Cd	115	196.342	396606	0.20	0.0	200	98.2	80	120	
118	Sn	115	211.135	968143	1.00	0.0	200	105.6	80	120	
121	Sb	115	504.957	3710050	1.33	309.3	200	97.8	80	120	
137	Ba	115	257.160	617221	0.98	60.9	200	98.1	80	120	
205	Tl	209	192.260	5624601	0.59	0.0	200	96.1	80	120	
208	Pb	209	195.757	7587366	0.87	0.1	200	97.8	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1368643	2.36	1522183	89.91	70	120	
72	Ge	986654	0.43	1074520	91.82	70	120	
115	In	10215913	0.37	11514007	88.73	70	120	
209	Bi	20918031	1.29	22396997	93.40	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/29/2014 12:39	Sample Name	1405261-03A MSD
Data Batch	140529.b	Comment	MSD 6020A_W
Data File Name	101_MSS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	197.081	10291	1.14	0.0	200	98.5	80	120	
11	B	45	188.567	8039	0.87	-20.4	200	104.5	80	120	
23	Na	45	9403.604	6553502	0.49	4721.9	1000	468.2	80	120	Fail
24	Mg	45	9771.456	3604215	3.03	5220.3	1000	455.1	80	120	Fail
27	Al	45	4859.539	947749	0.38	16.5	1000	484.3	80	120	Fail
39	K	45	7229.368	3252127	0.78	2014.1	1000	521.5	80	120	Fail
44	Ca	45	########	3016010	1.28	111858.8	1000	202.4	80	120	Fail
47	Ti	45	214.200	34422	0.51	0.1	200	107.0	80	120	
51	V	45	196.843	993323	0.71	1.1	200	97.9	80	120	
52	Cr	45	197.974	1165824	0.27	0.3	200	98.8	80	120	
55	Mn	45	234.984	945801	0.68	43.7	200	95.7	80	120	
56	Fe	45	4881.476	28073074	0.34	14.5	1000	486.7	80	120	Fail
59	Co	72	199.661	1789289	0.76	0.3	200	99.7	80	120	
60	Ni	72	190.602	459462	0.84	0.1	200	95.2	80	120	
63	Cu	72	190.062	1250391	0.44	1.6	200	94.2	80	120	
66	Zn	72	182.862	258630	0.31	1.1	200	90.9	80	120	
75	As	72	194.632	212336	0.33	6.0	200	94.3	80	120	
78	Se	72	196.371	16000	0.69	0.4	200	98.0	80	120	
88	Sr	115	428.984	2517880	1.58	203.1	200	112.9	80	120	
95	Mo	115	222.883	864992	0.65	11.1	200	105.9	80	120	
107	Ag	115	204.525	2472181	3.62	0.0	200	102.2	80	120	
111	Cd	115	195.419	392579	0.47	0.0	200	97.7	80	120	
118	Sn	115	211.685	965327	0.70	0.0	200	105.8	80	120	
121	Sb	115	505.304	3692175	0.70	309.3	200	98.0	80	120	
137	Ba	115	256.725	612750	0.20	60.9	200	97.9	80	120	
205	Tl	209	198.070	5667344	1.93	0.0	200	99.0	80	120	
208	Pb	209	201.257	7630417	0.75	0.1	200	100.6	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1367409	1.17	1522183	89.83	70	120	
72	Ge	987467	0.25	1074520	91.90	70	120	
115	In	10162443	2.20	11514007	88.26	70	120	
209	Bi	20462323	1.23	22396997	91.36	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/29/2014 12:40	Sample Name	CCV4-140529
Data Batch	140529.b	Comment	CCV ICPMS_TW
Data File Name	102_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	200.105	10489	1.33	200	100.1	90	110	
11	B	45	189.257	8089	2.31	200	94.6	90	110	
23	Na	45	4986.204	3517597	1.45	5000	99.7	90	110	
24	Mg	45	5197.201	1925286	2.09	5000	103.9	90	110	
27	Al	45	5158.206	1009966	0.46	5000	103.2	90	110	
39	K	45	5219.238	2373822	0.36	5000	104.4	90	110	
44	Ca	45	5505.857	146638	0.50	5000	110.1	90	110	Fail
47	Ti	45	217.264	35055	0.95	200	108.6	90	110	
51	V	45	202.899	1027948	0.42	200	101.4	90	110	
52	Cr	45	206.418	1220154	0.71	200	103.2	90	110	
55	Mn	45	199.468	806110	0.69	200	99.7	90	110	
56	Fe	45	5124.036	29581533	1.16	5000	102.5	90	110	
59	Co	72	207.098	1878500	1.07	200	103.5	90	110	
60	Ni	72	200.647	489427	0.47	200	100.3	90	110	
63	Cu	72	200.588	1335581	0.89	200	100.3	90	110	
66	Zn	72	195.913	280422	0.43	200	98.0	90	110	
75	As	72	192.464	212514	0.30	200	96.2	90	110	
78	Se	72	202.780	16719	1.49	200	101.4	90	110	
88	Sr	115	216.367	1303554	0.21	200	108.2	90	110	
95	Mo	115	213.794	851682	0.92	200	106.9	90	110	
107	Ag	115	208.373	2586044	2.43	200	104.2	90	110	
111	Cd	115	202.989	418602	0.31	200	101.5	90	110	
118	Sn	115	210.705	986393	1.00	200	105.4	90	110	
121	Sb	115	199.619	1497505	0.55	200	99.8	90	110	
137	Ba	115	202.454	496081	0.20	200	101.2	90	110	
205	Tl	209	196.903	5888815	1.01	200	98.5	90	110	
208	Pb	209	202.152	8009322	1.07	200	101.1	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1372827	1.17	1522183	90.19	70	120	
72	Ge	999445	0.66	1074520	93.01	70	120	
115	In	10429450	0.48	11514007	90.58	70	120	
209	Bi	21387121	2.05	22396997	95.49	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/29/2014 12:44	Sample Name	LCVL4-140529
Data Batch	140529.b	Comment	LCVLICPMS_TW
Data File Name	104LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.936	53	23.19	1	93.6	70	130	
11	B	45	-34.480	2804	0.90	20	-172.4	70	130	Fail
23	Na	45	107.069	144393	0.36	100	107.1	70	130	
24	Mg	45	103.406	41509	0.63	100	103.4	70	130	
27	Al	45	95.975	20258	2.36	100	96.0	70	130	
39	K	45	101.924	111746	0.74	100	101.9	70	130	
44	Ca	45	112.740	3448	2.03	100	112.7	70	130	
47	Ti	45	5.008	870	5.64	5	100.2	70	130	
51	V	45	1.090	8098	0.44	1	109.0	70	130	
52	Cr	45	4.777	32910	1.43	5	95.5	70	130	
55	Mn	45	4.679	20457	2.23	5	93.6	70	130	
56	Fe	45	86.829	550371	0.65	100	86.8	70	130	
59	Co	72	4.901	46103	0.69	5	98.0	70	130	
60	Ni	72	4.561	13269	1.70	5	91.2	70	130	
63	Cu	72	4.906	35041	1.89	5	98.1	70	130	
66	Zn	72	4.567	7096	2.20	5	91.3	70	130	
75	As	72	4.519	5364	0.51	5	90.4	70	130	
78	Se	72	5.128	524	3.09	5	102.6	70	130	
88	Sr	115	4.933	30986	0.96	5	98.7	70	130	
95	Mo	115	4.627	19212	0.44	5	92.5	70	130	
107	Ag	115	1.853	23921	1.79	2	92.6	70	130	
111	Cd	115	0.955	2097	6.45	1	95.5	70	130	
118	Sn	115	4.943	24879	1.76	5	98.9	70	130	
121	Sb	115	1.788	14212	0.46	2	89.4	70	130	
137	Ba	115	4.790	12255	3.73	5	95.8	70	130	
205	Tl	209	0.964	30240	0.85	1	96.4	70	130	
208	Pb	209	0.986	44371	0.95	1	98.6	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1460981	2.29	1522183	95.98	70	120	
72	Ge	1030964	0.37	1074520	95.95	70	120	
115	In	10841144	1.09	11514007	94.16	70	120	
209	Bi	22001570	0.75	22396997	98.23	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/29/2014 12:46	Sample Name	CCB4-140529
Data Batch	140529.b	Comment	CCB ICPMS_TW
Data File Name	105_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.092	6	90.6	0.4	0.3	
11	B	45	-60.009	2119	4.4	10	10	
23	Na	45	21.566	80453	13.9	50	100	
24	Mg	45	8.147	3927	66.6	50	100	
27	Al	45	16.653	3694	67.5	50	10	FailAq
39	K	45	3.083	64423	3.3	50	100	
44	Ca	45	146.842	4354	68.3	50	100	FailAq FailSoil
47	Ti	45	0.213	47	75.6	4	3	
51	V	45	0.211	3329	8.6	4	3	
52	Cr	45	-0.069	2479	25.4	2	2	
55	Mn	45	0.162	1040	51.4	2	3	
56	Fe	45	14.707	106180	65.1	50	50	
59	Co	72	0.084	1034	61.5	2	3	
60	Ni	72	-0.319	1032	16.2	2	3	
63	Cu	72	0.069	1852	26.4	2	2	
66	Zn	72	0.114	530	27.4	4	2	
75	As	72	0.105	341	26.1	2	2	
78	Se	72	0.276	113	11.0	1	2	
88	Sr	115	0.402	2628	68.2	4	3	
95	Mo	115	0.148	668	71.6	2	2	
107	Ag	115	0.068	904	53.1	0.4	1	
111	Cd	115	0.108	282	69.9	0.4	0.3	
118	Sn	115	0.064	1166	25.5	4	3	
121	Sb	115	0.187	1745	39.4	2	0.8	
137	Ba	115	0.314	863	62.3	2	3	
205	Tl	209	0.110	3932	48.2	2	0.5	
208	Pb	209	0.116	8838	33.4	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1445156	2.22	1522183	94.94	70	120	
72	Ge	1028846	0.19	1074520	95.75	70	120	
115	In	10896338	0.44	11514007	94.64	70	120	
209	Bi	21787507	0.65	22396997	97.28	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/29/2014 13:07	Sample Name	CCV5-140529
Data Batch	140529.b	Comment	CCV ICPMS_TW
Data File Name	116_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	190.088	11043	2.53	200	95.0	90	110	
11	B	45	182.568	8788	3.42	200	91.3	90	110	
23	Na	45	5647.004	4407055	1.58	5000	112.9	90	110	Fail
24	Mg	45	5063.794	2079831	1.99	5000	101.3	90	110	
27	Al	45	5010.555	1087512	0.74	5000	100.2	90	110	
39	K	45	5188.020	2615637	1.58	5000	103.8	90	110	
44	Ca	45	5673.670	167475	0.71	5000	113.5	90	110	Fail
47	Ti	45	212.483	38005	2.00	200	106.2	90	110	
51	V	45	195.354	1097245	0.40	200	97.7	90	110	
52	Cr	45	198.265	1299065	1.74	200	99.1	90	110	
55	Mn	45	193.715	867752	0.79	200	96.9	90	110	
56	Fe	45	4927.465	31539954	0.66	5000	98.5	90	110	
59	Co	72	205.574	1992783	1.20	200	102.8	90	110	
60	Ni	72	201.175	524493	0.52	200	100.6	90	110	
63	Cu	72	199.938	1422887	0.55	200	100.0	90	110	
66	Zn	72	196.509	300629	0.76	200	98.3	90	110	
75	As	72	193.332	228174	0.36	200	96.7	90	110	
78	Se	72	201.724	17778	0.31	200	100.9	90	110	
88	Sr	115	222.767	1462114	1.99	200	111.4	90	110	Fail
95	Mo	115	209.165	907570	0.48	200	104.6	90	110	
107	Ag	115	201.955	2730016	2.35	200	101.0	90	110	
111	Cd	115	197.354	443328	0.96	200	98.7	90	110	
118	Sn	115	205.560	1048112	0.46	200	102.8	90	110	
121	Sb	115	200.507	1638427	0.62	200	100.3	90	110	
137	Ba	115	196.450	524324	0.59	200	98.2	90	110	
205	Tl	209	194.579	6175077	1.66	200	97.3	90	110	
208	Pb	209	199.085	8370194	0.85	200	99.5	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1522267	2.42	1522183	100.01	70	120	
72	Ge	1068312	1.13	1074520	99.42	70	120	
115	In	11362127	1.87	11514007	98.68	70	120	
209	Bi	22692965	2.09	22396997	101.32	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/29/2014 13:11	Sample Name	LCVL5-140529
Data Batch	140529.b	Comment	LCVLICPMS_TW
Data File Name	118LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.891	52	10.87	1	89.1	70	130	
11	B	45	-47.224	2571	5.03	20	-236.1	70	130	Fail
23	Na	45	349.757	336277	4.04	100	349.8	70	130	Fail
24	Mg	45	163.715	67865	1.86	100	163.7	70	130	Fail
27	Al	45	98.361	21586	1.28	100	98.4	70	130	
39	K	45	106.262	118320	0.96	100	106.3	70	130	
44	Ca	45	234.962	7182	4.18	100	235.0	70	130	Fail
47	Ti	45	4.732	856	1.92	5	94.6	70	130	
51	V	45	1.204	9058	4.16	1	120.4	70	130	
52	Cr	45	4.814	34471	1.76	5	96.3	70	130	
55	Mn	45	4.723	21474	0.12	5	94.5	70	130	
56	Fe	45	89.533	589554	1.37	100	89.5	70	130	
59	Co	72	4.984	48755	1.10	5	99.7	70	130	
60	Ni	72	4.601	13905	2.26	5	92.0	70	130	
63	Cu	72	4.938	36673	2.08	5	98.8	70	130	
66	Zn	72	4.660	7524	1.64	5	93.2	70	130	
75	As	72	4.621	5700	2.77	5	92.4	70	130	
78	Se	72	5.279	558	4.78	5	105.6	70	130	
88	Sr	115	7.953	52028	2.94	5	159.1	70	130	Fail
95	Mo	115	4.735	20506	2.36	5	94.7	70	130	
107	Ag	115	1.894	25499	1.50	2	94.7	70	130	
111	Cd	115	1.003	2294	4.02	1	100.3	70	130	
118	Sn	115	4.988	26178	2.13	5	99.8	70	130	
121	Sb	115	1.878	15553	2.24	2	93.9	70	130	
137	Ba	115	4.856	12958	1.75	5	97.1	70	130	
205	Tl	209	1.050	32942	1.98	1	105.0	70	130	
208	Pb	209	1.068	47792	1.64	1	106.8	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1518566	0.47	1522183	99.76	70	120	
72	Ge	1072275	0.27	1074520	99.79	70	120	
115	In	11305583	0.98	11514007	98.19	70	120	
209	Bi	22034055	1.09	22396997	98.38	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/29/2014 13:13	Sample Name	CCB5-140529
Data Batch	140529.b	Comment	CCB ICPMS_TW
Data File Name	119_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.070	5	53.9	0.4	0.3	
11	B	45	-70.191	1912	5.5	10	10	
23	Na	45	151.851	180744	4.5	50	100	FailAq FailSoil
24	Mg	45	35.856	15170	7.4	50	100	
27	Al	45	1.115	517	14.2	50	10	
39	K	45	3.162	66431	0.5	50	100	
44	Ca	45	86.738	2766	1.2	50	100	FailSoil
47	Ti	45	0.026	16	32.7	4	3	
51	V	45	0.234	3558	4.0	4	3	
52	Cr	45	-0.102	2342	3.8	2	2	
55	Mn	45	0.119	882	18.1	2	3	
56	Fe	45	1.159	24898	3.9	50	50	
59	Co	72	0.053	764	0.7	2	3	
60	Ni	72	-0.350	976	6.8	2	3	
63	Cu	72	0.065	1865	8.9	2	2	
66	Zn	72	0.035	422	7.5	4	2	
75	As	72	0.101	344	1.2	2	2	
78	Se	72	0.246	113	11.7	1	2	
88	Sr	115	2.019	13111	8.1	4	3	
95	Mo	115	0.064	328	6.5	2	2	
107	Ag	115	0.072	978	15.8	0.4	1	
111	Cd	115	0.058	179	23.7	0.4	0.3	
118	Sn	115	0.014	946	8.4	4	3	
121	Sb	115	0.120	1241	7.6	2	0.8	
137	Ba	115	0.148	447	14.4	2	3	
205	Tl	209	0.058	2388	4.2	2	0.5	
208	Pb	209	0.059	6625	2.8	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1490025	3.17	1522183	97.89	70	120	
72	Ge	1052319	0.37	1074520	97.93	70	120	
115	In	11152710	1.44	11514007	96.86	70	120	
209	Bi	22049439	0.96	22396997	98.45	70	120	

Method Blank Report

Date Acquired	5/29/14 1:15 PM	Sample Name	MB-63798
Data Batch	140529.b	Comment	MBLK6020A_W
Data File Name	120_LRB.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.035	3	57.28		
11	B	45	-71.386	1893	10.08		
23	Na	45	84.507	130998	5.99		
24	Mg	45	18.310	8185	10.66		
27	Al	45	2.339	781	8.64		
39	K	45	7.484	68935	1.06		
44	Ca	45	48.277	1667	3.42		
47	Ti	45	0.051	20	44.10		
51	V	45	0.200	3396	6.13		
52	Cr	45	-0.045	2727	3.09		
55	Mn	45	0.126	918	6.91		
56	Fe	45	2.023	30505	3.64		
59	Co	72	0.022	468	12.22		
60	Ni	72	-0.335	1018	9.85		
63	Cu	72	0.489	4852	2.85		
66	Zn	72	0.361	917	4.81		
75	As	72	0.044	279	12.80		
78	Se	72	0.288	117	14.39		
88	Sr	115	0.982	6314	13.19		
95	Mo	115	0.042	232	5.04		
107	Ag	115	0.042	572	11.32		
111	Cd	115	0.009	69	16.99		
118	Sn	115	-0.021	760	11.47		
121	Sb	115	0.059	739	8.09		
137	Ba	115	0.087	282	13.69		
205	Tl	209	0.024	1330	10.05		
208	Pb	209	0.022	5126	3.86		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1498651	1.81	1522183	98.45	70	120	
72	Ge	1056771	1.08	1074520	98.35	70	120	
115	In	10975465	1.65	11514007	95.32	70	120	
209	Bi	22135854	1.03	22396997	98.83	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/29/2014 13:21	Sample Name	LCS-63798
Data Batch	140529.b	Comment	LCS 6020A_W
Data File Name	123_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	188.803	10720	1.26	200	188.8	80	120	
11	B	45	119.964	6930	3.43	200	120.0	80	120	
23	Na	45	5335.355	4072915	1.95	5000	5335.4	80	120	Fail
24	Mg	45	4957.625	1989148	0.88	5000	4957.6	80	120	
27	Al	45	4756.181	1008786	0.41	5000	4756.2	80	120	
39	K	45	5046.171	2488640	3.23	5000	5046.2	80	120	
44	Ca	45	4856.728	140127	1.32	5000	4856.7	80	120	
47	Ti	45	208.400	36417	1.45	200	208.4	80	120	
51	V	45	191.307	1049898	0.89	200	191.3	80	120	
52	Cr	45	193.843	1241320	0.86	200	193.8	80	120	
55	Mn	45	190.112	832178	0.52	200	190.1	80	120	
56	Fe	45	4860.494	30395683	1.39	5000	4860.5	80	120	
59	Co	72	203.458	1939383	0.86	200	203.5	80	120	
60	Ni	72	195.410	500980	0.67	200	195.4	80	120	
63	Cu	72	196.359	1373988	0.47	200	196.4	80	120	
66	Zn	72	185.775	279468	0.18	200	185.8	80	120	
75	As	72	188.643	218910	0.85	200	188.6	80	120	
78	Se	72	198.724	17222	0.70	200	198.7	80	120	
88	Sr	115	206.428	1314181	0.35	200	206.4	80	120	
95	Mo	115	206.572	869567	0.35	200	206.6	80	120	
107	Ag	115	197.720	2593206	1.03	200	197.7	80	120	
111	Cd	115	192.948	420434	0.54	200	192.9	80	120	
118	Sn	115	202.663	1002493	0.21	200	202.7	80	120	
121	Sb	115	192.660	1527062	1.11	200	192.7	80	120	
137	Ba	115	191.312	495343	0.40	200	191.3	80	120	
205	Tl	209	192.671	5875760	0.88	200	192.7	80	120	
208	Pb	209	197.630	7985992	1.46	200	197.6	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1486968	0.90	1522183	97.69	70	120	
72	Ge	1050311	0.24	1074520	97.75	70	120	
115	In	11021390	1.30	11514007	95.72	70	120	
209	Bi	21807725	1.33	22396997	97.37	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/29/2014 13:23	Sample Name	LCSD-63798
Data Batch	140529.b	Comment	LCSD6020A_W
Data File Name	124_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	193.057	10708	1.81	200	193.1	80	120	
11	B	45	128.307	6985	1.04	200	128.3	80	120	
23	Na	45	5105.371	3809787	2.91	5000	5105.4	80	120	Fail
24	Mg	45	5114.029	2004189	1.09	5000	5114.0	80	120	
27	Al	45	4880.762	1011136	0.54	5000	4880.8	80	120	
39	K	45	5276.447	2538102	1.48	5000	5276.4	80	120	
44	Ca	45	4904.325	138214	0.42	5000	4904.3	80	120	
47	Ti	45	211.328	36070	1.33	200	211.3	80	120	
51	V	45	195.096	1045816	0.22	200	195.1	80	120	
52	Cr	45	197.870	1237695	1.12	200	197.9	80	120	
55	Mn	45	192.831	824511	0.86	200	192.8	80	120	
56	Fe	45	4945.486	30206134	2.00	5000	4945.5	80	120	
59	Co	72	207.239	1952331	2.08	200	207.2	80	120	
60	Ni	72	196.589	498077	0.49	200	196.6	80	120	
63	Cu	72	195.668	1353131	0.33	200	195.7	80	120	
66	Zn	72	186.704	277576	0.99	200	186.7	80	120	
75	As	72	189.085	216843	0.91	200	189.1	80	120	
78	Se	72	199.985	17128	0.82	200	200.0	80	120	
88	Sr	115	206.772	1305678	0.35	200	206.8	80	120	
95	Mo	115	205.729	858912	0.97	200	205.7	80	120	
107	Ag	115	203.991	2653234	0.99	200	204.0	80	120	
111	Cd	115	195.369	422244	0.58	200	195.4	80	120	
118	Sn	115	203.289	997477	0.39	200	203.3	80	120	
121	Sb	115	199.926	1571700	4.55	200	199.9	80	120	
137	Ba	115	192.228	493652	0.63	200	192.2	80	120	
205	Tl	209	192.890	5830320	0.75	200	192.9	80	120	
208	Pb	209	200.648	8035940	0.83	200	200.6	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1452401	0.96	1522183	95.42	70	120	
72	Ge	1038052	0.80	1074520	96.61	70	120	
115	In	10932866	1.69	11514007	94.95	70	120	
209	Bi	21613014	1.16	22396997	96.50	70	120	

Dilution Sample (Dil) Report

Date Acquired	5/29/2014 13:28	Sample Name	1405265-04A SD
Data Batch	140529.b	Comment	SD 6020A_W
Data File Name	127_SD.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
9	Be	45	0.131	8	12.50	0.2	334.5	110	90	
11	B	45	268.716	10749	1.76	1538.6	87.3	110	90	
23	Na	45	98388.530	73196755	1.01	459749.0	107.0	110	90	Good
24	Mg	45	24382.176	9681585	0.22	113768.3	107.2	110	90	Good
27	Al	45	6.494	1640	5.59	20.0	162.7	110	90	
39	K	45	2438.819	1223639	0.05	11560.2	105.5	110	90	Good
44	Ca	45	97380.978	2776691	0.24	459416.0	106.0	110	90	Good
47	Ti	45	0.091	27	24.99	0.3	152.2	110	90	
51	V	45	0.395	4395	6.69	0.8	258.0	110	90	
52	Cr	45	1.664	13487	1.21	8.0	104.3	110	90	Good
55	Mn	45	0.184	1156	4.49	0.5	187.3	110	90	
56	Fe	45	2.474	32763	3.05	5.6	222.1	110	90	
59	Co	72	0.155	1749	3.31	0.4	179.9	110	90	
60	Ni	72	0.077	2081	5.27	1.6	24.1	110	90	
63	Cu	72	3.473	25883	1.25	15.4	112.5	110	90	
66	Zn	72	21.225	32505	0.76	97.8	108.6	110	90	Good
75	As	72	1.674	2184	2.62	8.1	103.5	110	90	Good
78	Se	72	5.051	531	1.13	24.0	105.3	110	90	Good
88	Sr	115	1457.025	9257007	0.50	7066.1	103.1	110	90	Good
95	Mo	115	0.308	1347	6.98	1.0	155.3	110	90	
107	Ag	115	0.149	1966	1.70	0.2	308.8	110	90	
111	Cd	115	0.113	296	8.16	0.2	370.7	110	90	
118	Sn	115	0.129	1499	8.16	0.4	154.0	110	90	
121	Sb	115	0.156	1508	4.90	0.3	273.8	110	90	
137	Ba	115	5.808	15066	0.76	27.6	105.1	110	90	Good
205	Tl	209	0.127	4306	12.56	0.2	310.1	110	90	
208	Pb	209	0.815	35931	0.92	3.6	114.1	110	90	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1472000	0.41	1522183	96.70	70	120	
72	Ge	1058419	0.86	1074520	98.50	70	120	
115	In	10998758	0.17	11514007	95.53	70	120	
209	Bi	21125168	0.60	22396997	94.32	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	5/29/2014 13:46	Sample Name	1405265-04A PDS
Data Batch	140529.b	Comment	PDS 6020A_W
Data File Name	136_PDS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	187.711	10543	0.13	0.2	200	93.8	75	125	
11	B	45	1646.298	46708	1.61	1538.6	200	53.9	75	125	Fail
23	Na	45	########	330182511	0.79	459749.0	5000	-304.9	75	125	Fail
24	Mg	45	########	44535282	1.43	113768.3	5000	-30.3	75	125	Fail
27	Al	45	4700.780	986228	0.70	20.0	5000	93.6	75	125	
39	K	45	16427.040	7867347	0.21	11560.2	5000	97.3	75	125	
44	Ca	45	########	12495760	1.03	459416.0	5000	-415.4	75	125	Fail
47	Ti	45	206.314	35667	1.35	0.3	200	103.0	75	125	
51	V	45	198.816	1079282	1.32	0.8	200	99.0	75	125	
52	Cr	45	206.258	1306436	1.87	8.0	200	99.1	75	125	
55	Mn	45	190.577	825198	0.33	0.5	200	95.0	75	125	
56	Fe	45	4571.174	28278854	0.71	5.6	5000	91.3	75	125	
59	Co	72	205.479	1881679	1.29	0.4	200	102.5	75	125	
60	Ni	72	192.415	473951	0.41	1.6	200	95.4	75	125	
63	Cu	72	201.803	1356569	0.57	15.4	200	93.2	75	125	
66	Zn	72	272.645	393879	1.09	97.8	200	87.4	75	125	
75	As	72	207.467	231270	0.52	8.1	200	99.7	75	125	
78	Se	72	229.791	19118	2.40	24.0	200	102.9	75	125	
88	Sr	115	7054.276	41747089	0.54	7066.1	200	-5.9	75	125	Fail
95	Mo	115	208.274	815035	0.27	1.0	200	103.6	75	125	
107	Ag	115	194.765	2374863	1.77	0.2	200	97.3	75	125	
111	Cd	115	200.109	405328	0.84	0.2	200	100.0	75	125	
118	Sn	115	216.791	996975	1.05	0.4	200	108.2	75	125	
121	Sb	115	205.303	1512659	0.94	0.3	200	102.5	75	125	
137	Ba	115	234.263	563905	0.91	27.6	200	103.3	75	125	
205	Tl	209	210.407	5669067	3.12	0.2	200	105.1	75	125	
208	Pb	209	214.388	7651951	0.41	3.6	200	105.4	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1470798	0.63	1522183	96.62	70	120	
72	Ge	1009051	0.42	1074520	93.91	70	120	
115	In	10247103	1.97	11514007	89.00	70	120	
209	Bi	19263324	1.10	22396997	86.01	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/29/2014 13:47	Sample Name	1405265-04A MS
Data Batch	140529.b	Comment	MS 6020A_W
Data File Name	137_MSS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	178.584	9628	0.48	0.2	200	89.2	80	120	
11	B	45	1747.414	47372	0.44	1538.6	200	104.4	80	120	
23	Na	45	########	334210893	0.24	459749.0	1000	896.3	80	120	Fail
24	Mg	45	########	45230403	1.03	113768.3	1000	499.7	80	120	Fail
27	Al	45	4801.716	966958	0.54	20.0	1000	478.2	80	120	Fail
39	K	45	16549.445	7606883	1.45	11560.2	1000	498.9	80	120	Fail
44	Ca	45	########	12902999	1.15	459416.0	1000	1245.6	80	120	Fail
47	Ti	45	211.793	35144	0.89	0.3	200	105.7	80	120	
51	V	45	196.946	1026171	1.33	0.8	200	98.1	80	120	
52	Cr	45	197.623	1201628	0.15	8.0	200	94.8	80	120	
55	Mn	45	186.316	774416	0.29	0.5	200	92.9	80	120	
56	Fe	45	4795.653	28478640	0.26	5.6	1000	479.0	80	120	Fail
59	Co	72	196.798	1766604	2.32	0.4	200	98.2	80	120	
60	Ni	72	183.004	441966	0.59	1.6	200	90.7	80	120	
63	Cu	72	194.681	1282938	0.55	15.4	200	89.6	80	120	
66	Zn	72	268.583	380360	0.83	97.8	200	85.4	80	120	
75	As	72	201.720	220438	0.46	8.1	200	96.8	80	120	
78	Se	72	225.945	18429	0.45	24.0	200	101.0	80	120	
88	Sr	115	7350.114	43320217	0.52	7066.1	200	142.0	80	120	Fail
95	Mo	115	213.231	830976	0.40	1.0	200	106.1	80	120	
107	Ag	115	189.365	2298856	1.60	0.2	200	94.6	80	120	
111	Cd	115	187.903	379062	1.42	0.2	200	93.9	80	120	
118	Sn	115	209.986	961680	0.34	0.4	200	104.8	80	120	
121	Sb	115	199.080	1460973	0.68	0.3	200	99.4	80	120	
137	Ba	115	224.236	537512	0.26	27.6	200	98.3	80	120	
205	Tl	209	196.385	5287876	1.40	0.2	200	98.1	80	120	
208	Pb	209	203.564	7262745	0.69	3.6	200	100.0	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1412033	1.49	1522183	92.76	70	120	
72	Ge	989153	0.40	1074520	92.06	70	120	
115	In	10204674	1.69	11514007	88.63	70	120	
209	Bi	19254183	1.18	22396997	85.97	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/29/2014 13:49	Sample Name	1405265-04A MSD
Data Batch	140529.b	Comment	MSD 6020A_W
Data File Name	138_MSS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	176.889	9665	1.22	0.2	200	88.3	80	120	
11	B	45	1726.630	47483	0.89	1538.6	200	94.0	80	120	
23	Na	45	########	333426645	0.71	459749.0	1000	166.6	80	120	Fail
24	Mg	45	########	45430853	0.32	113768.3	1000	394.9	80	120	Fail
27	Al	45	4731.720	965707	0.73	20.0	1000	471.2	80	120	Fail
39	K	45	16492.464	7684410	1.48	11560.2	1000	493.2	80	120	Fail
44	Ca	45	########	12831156	0.66	459416.0	1000	357.3	80	120	Fail
47	Ti	45	211.988	35651	1.40	0.3	200	105.8	80	120	
51	V	45	195.123	1030469	0.92	0.8	200	97.2	80	120	
52	Cr	45	198.245	1221617	0.57	8.0	200	95.1	80	120	
55	Mn	45	184.927	778928	0.93	0.5	200	92.2	80	120	
56	Fe	45	4787.754	28809410	2.05	5.6	1000	478.2	80	120	Fail
59	Co	72	193.912	1754389	0.98	0.4	200	96.7	80	120	
60	Ni	72	182.464	444115	0.49	1.6	200	90.4	80	120	
63	Cu	72	194.052	1288796	0.43	15.4	200	89.3	80	120	
66	Zn	72	267.413	381662	0.55	97.8	200	84.8	80	120	
75	As	72	200.158	220445	0.51	8.1	200	96.0	80	120	
78	Se	72	223.411	18366	0.68	24.0	200	99.7	80	120	
88	Sr	115	7436.077	43778627	2.20	7066.1	200	185.0	80	120	Fail
95	Mo	115	215.418	838585	0.29	1.0	200	107.2	80	120	
107	Ag	115	192.810	2338229	2.22	0.2	200	96.3	80	120	
111	Cd	115	187.116	377096	1.13	0.2	200	93.5	80	120	
118	Sn	115	211.593	967922	0.51	0.4	200	105.6	80	120	
121	Sb	115	199.344	1461317	0.22	0.3	200	99.5	80	120	
137	Ba	115	224.944	538599	0.58	27.6	200	98.7	80	120	
205	Tl	209	194.221	5258210	0.90	0.2	200	97.0	80	120	
208	Pb	209	200.350	7186006	0.67	3.6	200	98.4	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1430885	1.29	1522183	94.00	70	120	
72	Ge	996904	0.35	1074520	92.78	70	120	
115	In	10192290	1.31	11514007	88.52	70	120	
209	Bi	19356463	1.00	22396997	86.42	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/29/2014 13:51	Sample Name	CCV6-140529
Data Batch	140529.b	Comment	CCV ICPMS_TW
Data File Name	139_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	187.032	10835	1.82	200	93.5	90	110	
11	B	45	177.997	8633	3.87	200	89.0	90	110	Fail
23	Na	45	4972.265	3876609	1.79	5000	99.4	90	110	
24	Mg	45	4970.537	2034497	0.82	5000	99.4	90	110	
27	Al	45	5088.190	1100967	0.99	5000	101.8	90	110	
39	K	45	5155.770	2592048	0.96	5000	103.1	90	110	
44	Ca	45	5442.235	160166	0.88	5000	108.8	90	110	
47	Ti	45	214.137	38178	0.60	200	107.1	90	110	
51	V	45	196.673	1101118	0.14	200	98.3	90	110	
52	Cr	45	198.532	1297032	1.10	200	99.3	90	110	
55	Mn	45	194.072	866675	0.95	200	97.0	90	110	
56	Fe	45	4901.165	31269945	0.89	5000	98.0	90	110	
59	Co	72	208.528	2002724	2.25	200	104.3	90	110	
60	Ni	72	202.556	523124	0.60	200	101.3	90	110	
63	Cu	72	201.197	1418374	0.87	200	100.6	90	110	
66	Zn	72	197.584	299430	0.76	200	98.8	90	110	
75	As	72	197.476	230866	0.80	200	98.7	90	110	
78	Se	72	209.662	18300	1.12	200	104.8	90	110	
88	Sr	115	218.998	1423810	0.93	200	109.5	90	110	
95	Mo	115	209.056	898743	0.14	200	104.5	90	110	
107	Ag	115	200.061	2679096	1.78	200	100.0	90	110	
111	Cd	115	198.606	441931	1.17	200	99.3	90	110	
118	Sn	115	209.305	1057405	0.54	200	104.7	90	110	
121	Sb	115	202.732	1641190	0.47	200	101.4	90	110	
137	Ba	115	200.928	531300	0.51	200	100.5	90	110	
205	Tl	209	198.769	6175323	2.10	200	99.4	90	110	
208	Pb	209	202.469	8332857	0.58	200	101.2	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1516913	0.37	1522183	99.65	70	120	
72	Ge	1058184	0.55	1074520	98.48	70	120	
115	In	11256169	1.38	11514007	97.76	70	120	
209	Bi	22212699	1.76	22396997	99.18	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/29/2014 13:55	Sample Name	LCVL6-140529
Data Batch	140529.b	Comment	LCVLICPMS_TW
Data File Name	141LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.987	57	8.77	1	98.7	70	130	
11	B	45	-50.207	2454	2.79	20	-251.0	70	130	Fail
23	Na	45	164.223	191068	1.37	100	164.2	70	130	Fail
24	Mg	45	109.822	45101	1.30	100	109.8	70	130	
27	Al	45	92.297	19971	1.79	100	92.3	70	130	
39	K	45	107.577	117175	0.56	100	107.6	70	130	
44	Ca	45	119.821	3737	3.17	100	119.8	70	130	
47	Ti	45	4.855	863	11.13	5	97.1	70	130	
51	V	45	1.253	9193	2.71	1	125.3	70	130	
52	Cr	45	4.817	33978	1.90	5	96.3	70	130	
55	Mn	45	4.752	21280	1.71	5	95.0	70	130	
56	Fe	45	88.191	572254	0.48	100	88.2	70	130	
59	Co	72	4.909	47728	0.73	5	98.2	70	130	
60	Ni	72	4.476	13495	1.77	5	89.5	70	130	
63	Cu	72	4.986	36787	1.59	5	99.7	70	130	
66	Zn	72	4.567	7336	2.36	5	91.3	70	130	
75	As	72	4.696	5753	2.58	5	93.9	70	130	
78	Se	72	5.121	541	1.27	5	102.4	70	130	
88	Sr	115	5.107	33782	0.83	5	102.1	70	130	
95	Mo	115	4.682	20469	2.40	5	93.6	70	130	
107	Ag	115	1.767	24034	1.64	2	88.4	70	130	
111	Cd	115	0.947	2191	6.12	1	94.7	70	130	
118	Sn	115	4.833	25645	1.31	5	96.7	70	130	
121	Sb	115	1.742	14590	3.18	2	87.1	70	130	
137	Ba	115	4.620	12457	4.13	5	92.4	70	130	
205	Tl	209	0.962	29992	2.26	1	96.2	70	130	
208	Pb	209	0.972	43541	0.58	1	97.2	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1495994	1.56	1522183	98.28	70	120	
72	Ge	1065610	0.18	1074520	99.17	70	120	
115	In	11418625	1.82	11514007	99.17	70	120	
209	Bi	21868277	1.88	22396997	97.64	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/29/2014 13:57	Sample Name	CCB6-140529
Data Batch	140529.b	Comment	CCB ICPMS_TW
Data File Name	142_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.028	2	65.5	0.4	0.3	
11	B	45	-75.077	1839	4.3	10	10	
23	Na	45	43.353	102269	2.1	50	100	
24	Mg	45	0.102	853	5.9	50	100	
27	Al	45	-0.714	132	16.8	50	10	
39	K	45	-5.256	64255	1.1	50	100	
44	Ca	45	4.102	394	2.7	50	100	
47	Ti	45	-0.057	1	173.2	4	3	
51	V	45	0.266	3846	3.1	4	3	
52	Cr	45	-0.186	1862	1.6	2	2	
55	Mn	45	-0.004	357	10.3	2	3	
56	Fe	45	-1.041	11475	0.5	50	50	
59	Co	72	-0.006	198	2.6	2	3	
60	Ni	72	-0.510	570	4.6	2	3	
63	Cu	72	0.025	1600	6.4	2	2	
66	Zn	72	0.008	384	1.3	4	2	
75	As	72	0.021	254	7.3	2	2	
78	Se	72	0.213	111	12.6	1	2	
88	Sr	115	0.152	1076	5.0	4	3	
95	Mo	115	0.004	70	29.7	2	2	
107	Ag	115	0.020	290	21.5	0.4	1	
111	Cd	115	0.007	66	30.6	0.4	0.3	
118	Sn	115	-0.035	696	9.2	4	3	
121	Sb	115	-0.002	269	15.7	2	0.8	
137	Ba	115	0.021	114	18.7	2	3	
205	Tl	209	0.010	882	3.3	2	0.5	
208	Pb	209	-0.013	3647	3.4	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1533580	0.87	1522183	100.75	70	120	
72	Ge	1060530	1.03	1074520	98.70	70	120	
115	In	11120856	0.79	11514007	96.59	70	120	
209	Bi	21905620	1.02	22396997	97.81	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/29/2014 15:23	Sample Name	CCV8-140529
Data Batch	140529.b	Comment	CCV ICPMS_TW
Data File Name	168_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	181.421	10202	1.47	200	90.7	90	110	
11	B	45	148.032	7598	2.79	200	74.0	90	110	Fail
23	Na	45	4721.288	3577238	1.33	5000	94.4	90	110	
24	Mg	45	4784.849	1900992	2.40	5000	95.7	90	110	
27	Al	45	4981.771	1046647	0.90	5000	99.6	90	110	
39	K	45	5043.003	2463156	0.96	5000	100.9	90	110	
44	Ca	45	5297.228	151385	1.61	5000	105.9	90	110	
47	Ti	45	204.673	35431	0.76	200	102.3	90	110	
51	V	45	191.034	1038467	0.30	200	95.5	90	110	
52	Cr	45	191.010	1211645	0.22	200	95.5	90	110	
55	Mn	45	189.006	819509	0.11	200	94.5	90	110	
56	Fe	45	4775.577	29588501	1.49	5000	95.5	90	110	
59	Co	72	204.391	1892778	2.74	200	102.2	90	110	
60	Ni	72	195.311	486415	0.25	200	97.7	90	110	
63	Cu	72	194.045	1318982	0.16	200	97.0	90	110	
66	Zn	72	191.668	280065	0.94	200	95.8	90	110	
75	As	72	191.714	216110	0.48	200	95.9	90	110	
78	Se	72	204.484	17211	1.63	200	102.2	90	110	
88	Sr	115	216.225	1351045	0.54	200	108.1	90	110	
95	Mo	115	204.200	843623	0.49	200	102.1	90	110	
107	Ag	115	196.964	2535401	0.98	200	98.5	90	110	
111	Cd	115	192.245	411184	1.14	200	96.1	90	110	
118	Sn	115	205.860	999460	0.75	200	102.9	90	110	
121	Sb	115	192.126	1494781	0.65	200	96.1	90	110	
137	Ba	115	199.461	506841	0.70	200	99.7	90	110	
205	Tl	209	194.843	5757541	0.49	200	97.4	90	110	
208	Pb	209	197.953	7749938	0.79	200	99.0	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1473121	1.93	1522183	96.78	70	120	
72	Ge	1020318	0.79	1074520	94.96	70	120	
115	In	10817125	1.25	11514007	93.95	70	120	
209	Bi	21126719	0.26	22396997	94.33	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/29/2014 15:27	Sample Name	LCVL8-140529
Data Batch	140529.b	Comment	LCVLICPMS_TW
Data File Name	170LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	1.006	56	17.72	1	100.6	70	130	
11	B	45	-62.349	2046	3.06	20	-311.7	70	130	Fail
23	Na	45	151.194	173946	0.91	100	151.2	70	130	Fail
24	Mg	45	105.569	41641	1.36	100	105.6	70	130	
27	Al	45	90.421	18786	1.20	100	90.4	70	130	
39	K	45	102.132	109966	0.68	100	102.1	70	130	
44	Ca	45	108.758	3280	1.17	100	108.8	70	130	
47	Ti	45	4.902	838	1.28	5	98.0	70	130	
51	V	45	1.164	8354	0.48	1	116.4	70	130	
52	Cr	45	4.629	31447	1.06	5	92.6	70	130	
55	Mn	45	4.583	19710	1.18	5	91.7	70	130	
56	Fe	45	84.978	529957	0.06	100	85.0	70	130	
59	Co	72	4.856	44568	0.21	5	97.1	70	130	
60	Ni	72	4.363	12459	3.54	5	87.3	70	130	
63	Cu	72	4.844	33776	1.41	5	96.9	70	130	
66	Zn	72	4.429	6727	2.40	5	88.6	70	130	
75	As	72	4.531	5247	0.41	5	90.6	70	130	
78	Se	72	5.024	503	10.09	5	100.5	70	130	
88	Sr	115	5.096	31545	3.19	5	101.9	70	130	
95	Mo	115	4.533	18554	0.56	5	90.7	70	130	
107	Ag	115	1.751	22288	2.77	2	87.6	70	130	
111	Cd	115	0.985	2129	4.56	1	98.5	70	130	
118	Sn	115	4.874	24199	1.45	5	97.5	70	130	
121	Sb	115	1.696	13305	2.46	2	84.8	70	130	
137	Ba	115	4.816	12148	1.12	5	96.3	70	130	
205	Tl	209	0.934	27729	1.32	1	93.4	70	130	
208	Pb	209	0.947	40462	0.88	1	94.7	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1436346	2.13	1522183	94.36	70	120	
72	Ge	1005904	0.62	1074520	93.61	70	120	
115	In	10686982	0.96	11514007	92.82	70	120	
209	Bi	20814401	1.61	22396997	92.93	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/29/2014 15:29	Sample Name	CCB8-140529
Data Batch	140529.b	Comment	CCB ICPMS_TW
Data File Name	171_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.001	1	86.6	0.4	0.3	
11	B	45	-81.285	1578	6.7	10	10	
23	Na	45	37.672	92441	1.3	50	100	
24	Mg	45	-0.150	708	8.8	50	100	
27	Al	45	-0.668	134	16.1	50	10	
39	K	45	-6.386	60154	0.1	50	100	
44	Ca	45	1.395	297	10.8	50	100	
47	Ti	45	-0.063	0	#DIV/0!	4	3	
51	V	45	0.233	3456	4.6	4	3	
52	Cr	45	-0.181	1790	3.4	2	2	
55	Mn	45	0.000	352	25.0	2	3	
56	Fe	45	-1.005	11060	0.5	50	50	
59	Co	72	-0.008	174	31.1	2	3	
60	Ni	72	-0.476	623	6.2	2	3	
63	Cu	72	0.025	1513	6.9	2	2	
66	Zn	72	0.015	374	8.3	4	2	
75	As	72	0.030	249	6.0	2	2	
78	Se	72	0.383	119	13.4	1	2	
88	Sr	115	0.137	934	3.7	4	3	
95	Mo	115	0.005	74	25.5	2	2	
107	Ag	115	0.021	291	8.3	0.4	1	
111	Cd	115	-0.001	46	44.7	0.4	0.3	
118	Sn	115	-0.045	620	5.7	4	3	
121	Sb	115	-0.002	254	10.0	2	0.8	
137	Ba	115	0.013	89	20.7	2	3	
205	Tl	209	0.008	790	17.7	2	0.5	
208	Pb	209	-0.019	3239	8.2	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1448592	1.68	1522183	95.17	70	120	
72	Ge	1003283	1.05	1074520	93.37	70	120	
115	In	10635182	0.04	11514007	92.37	70	120	
209	Bi	20757729	1.32	22396997	92.68	70	120	

Method Blank Report

Date Acquired	5/29/14 3:31 PM	Sample Name	MB-63857
Data Batch	140529.b	Comment	MBLKICPMS_TS
Data File Name	172_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.007	1	173.21		
11	B	45	-84.999	1476	8.32		
23	Na	45	40.796	94352	0.31		
24	Mg	45	2.347	1676	4.72		
27	Al	45	3.722	1037	11.16		
39	K	45	1.545	63610	0.46		
44	Ca	45	24.122	930	5.08		
47	Ti	45	0.056	20	76.36		
51	V	45	0.223	3396	7.56		
52	Cr	45	-0.130	2098	4.06		
55	Mn	45	0.117	847	5.21		
56	Fe	45	1.473	26034	2.36		
59	Co	72	-0.005	204	14.70		
60	Ni	72	-0.433	733	4.55		
63	Cu	72	0.095	1996	7.04		
66	Zn	72	1.194	2082	4.14		
75	As	72	-0.006	211	2.98		
78	Se	72	0.264	110	11.13		
88	Sr	115	0.207	1375	5.76		
95	Mo	115	0.007	81	26.74		
107	Ag	115	0.018	252	11.24		
111	Cd	115	0.002	53	22.54		
118	Sn	115	4.279	21366	0.61		J
121	Sb	115	-0.007	219	27.64		
137	Ba	115	0.060	209	2.44		
205	Tl	209	0.003	652	11.52		
208	Pb	209	0.016	4606	1.72		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1442732	1.49	1522183	94.78	70	120	
72	Ge	1011184	0.10	1074520	94.11	70	120	
115	In	10698339	1.69	11514007	92.92	70	120	
209	Bi	20903583	1.95	22396997	93.33	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/29/2014 15:33	Sample Name	LCS-63857
Data Batch	140529.b	Comment	LCS ICPMS_TS
Data File Name	173_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	186.740	10060	0.91	200	186.7	80	120	
11	B	45	128.374	6786	2.00	200	128.4	80	120	
23	Na	45	1036.296	801396	0.09	1000	1036.3	80	120	
24	Mg	45	1016.324	387490	1.24	1000	1016.3	80	120	
27	Al	45	1010.867	203627	0.81	1000	1010.9	80	120	
39	K	45	1038.465	534664	0.89	1000	1038.5	80	120	
44	Ca	45	1415.266	38916	1.90	1000	1415.3	80	120	Fail
47	Ti	45	217.537	36070	1.10	200	217.5	80	120	
51	V	45	198.572	1033911	0.74	200	198.6	80	120	
52	Cr	45	199.741	1213545	0.64	200	199.7	80	120	
55	Mn	45	197.930	822021	1.16	200	197.9	80	120	
56	Fe	45	1004.830	5975205	1.11	1000	1004.8	80	120	
59	Co	72	208.184	1887512	1.46	200	208.2	80	120	
60	Ni	72	201.493	491291	1.27	200	201.5	80	120	
63	Cu	72	197.652	1315554	0.22	200	197.7	80	120	
66	Zn	72	186.836	267349	0.46	200	186.8	80	120	
75	As	72	191.501	211381	0.45	200	191.5	80	120	
78	Se	72	201.167	16582	0.40	200	201.2	80	120	
88	Sr	115	217.648	1329268	0.51	200	217.6	80	120	
95	Mo	115	208.109	840430	0.06	200	208.1	80	120	
107	Ag	115	199.938	2515776	1.24	200	199.9	80	120	
111	Cd	115	195.892	409518	0.29	200	195.9	80	120	
118	Sn	115	216.172	1025735	0.62	200	216.2	80	120	
121	Sb	115	196.189	1491757	1.84	200	196.2	80	120	
137	Ba	115	200.778	498688	0.62	200	200.8	80	120	
205	Tl	209	199.992	5819156	0.39	200	200.0	80	120	
208	Pb	209	203.277	7836724	0.67	200	203.3	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1410745	0.91	1522183	92.68	70	120	
72	Ge	999089	0.59	1074520	92.98	70	120	
115	In	10575022	1.95	11514007	91.84	70	120	
209	Bi	20807789	1.73	22396997	92.90	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	5/29/2014 15:35	Sample Name	LCSD-63857
Data Batch	140529.b	Comment	LCSDICPMS_TS
Data File Name	174_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	188.869	10099	0.77	200	188.9	80	120	
11	B	45	128.142	6729	2.83	200	128.1	80	120	
23	Na	45	1038.416	796953	0.58	1000	1038.4	80	120	
24	Mg	45	1023.312	387200	0.64	1000	1023.3	80	120	
27	Al	45	1022.065	204332	0.60	1000	1022.1	80	120	
39	K	45	1052.313	536917	0.20	1000	1052.3	80	120	
44	Ca	45	1417.389	38686	1.08	1000	1417.4	80	120	Fail
47	Ti	45	219.268	36080	1.97	200	219.3	80	120	
51	V	45	199.156	1029133	0.83	200	199.2	80	120	
52	Cr	45	199.813	1204898	0.59	200	199.8	80	120	
55	Mn	45	200.244	825422	0.22	200	200.2	80	120	
56	Fe	45	1007.203	5944961	0.79	1000	1007.2	80	120	
59	Co	72	211.198	1913788	1.70	200	211.2	80	120	
60	Ni	72	199.788	486805	1.19	200	199.8	80	120	
63	Cu	72	195.958	1303334	0.63	200	196.0	80	120	
66	Zn	72	186.317	266421	0.20	200	186.3	80	120	
75	As	72	191.374	211097	0.52	200	191.4	80	120	
78	Se	72	204.984	16882	1.69	200	205.0	80	120	
88	Sr	115	214.476	1313064	0.13	200	214.5	80	120	
95	Mo	115	206.291	835097	0.51	200	206.3	80	120	
107	Ag	115	200.491	2528619	1.72	200	200.5	80	120	
111	Cd	115	194.139	406843	0.78	200	194.1	80	120	
118	Sn	115	213.793	1017026	0.42	200	213.8	80	120	
121	Sb	115	193.421	1474491	0.08	200	193.4	80	120	
137	Ba	115	198.858	495146	0.38	200	198.9	80	120	
205	Tl	209	196.082	5695434	0.99	200	196.1	80	120	
208	Pb	209	202.088	7776044	0.70	200	202.1	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1400249	0.96	1522183	91.99	70	120	
72	Ge	998431	0.88	1074520	92.92	70	120	
115	In	10598850	1.09	11514007	92.05	70	120	
209	Bi	20767084	1.12	22396997	92.72	70	120	

Dilution Sample (Dil) Report

Date Acquired	5/29/2014 15:40	Sample Name	1405322-01A SD
Data Batch	140529.b	Comment	SD ICPMS_TS
Data File Name	177_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
9	Be	45	0.477	27	15.23	2.6	92.7	110	90	Good
11	B	45	-83.119	1547	3.19	-53.1	782.2	110	90	
23	Na	45	70.186	117533	0.54	353.4	99.3	110	90	Good
24	Mg	45	2102.958	831585	0.87	10093.9	104.2	110	90	Good
27	Al	45	10429.129	2178383	2.40	50974.7	102.3	110	90	Good
39	K	45	888.926	484349	0.52	4672.4	95.1	110	90	Good
44	Ca	45	27114.516	769460	0.66	136217.5	99.5	110	90	Good
47	Ti	45	150.006	25839	8.13	656.7	114.2	110	90	
51	V	45	18.823	103780	0.29	93.5	100.6	110	90	Good
52	Cr	45	35.642	227237	0.40	176.6	100.9	110	90	Good
55	Mn	45	358.939	1547089	2.35	1694.2	105.9	110	90	Good
56	Fe	45	11077.529	68215866	0.42	53957.9	102.6	110	90	Good
59	Co	72	5.636	52351	1.35	28.2	100.1	110	90	Good
60	Ni	72	10.089	26803	1.49	51.9	97.2	110	90	Good
63	Cu	72	79.012	537036	0.61	389.7	101.4	110	90	Good
66	Zn	72	622.014	906695	0.35	3101.9	100.3	110	90	Good
75	As	72	11.633	13299	1.29	58.5	99.4	110	90	Good
78	Se	72	0.888	163	9.34	4.1	107.8	110	90	Good
88	Sr	115	70.655	444788	1.20	379.3	93.1	110	90	Good
95	Mo	115	1.175	4945	1.52	6.1	96.6	110	90	Good
107	Ag	115	0.168	2201	10.63	0.8	109.7	110	90	Good
111	Cd	115	1.415	3098	6.12	7.2	98.3	110	90	Good
118	Sn	115	6.336	31815	1.89	33.1	95.6	110	90	Good
121	Sb	115	7.635	60107	1.51	39.6	96.4	110	90	Good
137	Ba	115	198.497	508147	0.50	1070.5	92.7	110	90	Good
205	Tl	209	0.114	3956	3.84	0.5	106.6	110	90	Good
208	Pb	209	653.893	25697615	0.57	3368.1	97.1	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1464719	1.13	1522183	96.22	70	120	
72	Ge	1018715	0.59	1074520	94.81	70	120	
115	In	10896131	0.34	11514007	94.63	70	120	
209	Bi	21215001	0.36	22396997	94.72	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	5/29/2014 15:50	Sample Name	1405322-01A PDS
Data Batch	140529.b	Comment	PDS ICPMS_TS
Data File Name	182_PDS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	181.798	10602	1.16	2.6	200	89.6	75	125	
11	B	45	138.915	7634	2.44	-53.1	200	96.0	75	125	
23	Na	45	5454.679	4273665	1.55	353.4	5000	102.0	75	125	
24	Mg	45	15603.101	6428646	1.74	10093.9	5000	110.2	75	125	
27	Al	45	57446.253	12509193	3.38	50974.7	5000	129.4	75	125	Fail
39	K	45	10198.706	5096383	1.01	4672.4	5000	110.5	75	125	
44	Ca	45	########	4429280	0.84	136217.5	5000	270.5	75	125	Fail
47	Ti	45	847.456	151976	8.65	656.7	200	95.4	75	125	
51	V	45	302.524	1703618	0.86	93.5	200	104.5	75	125	
52	Cr	45	385.308	2530585	1.89	176.6	200	104.3	75	125	
55	Mn	45	1994.213	8961670	0.39	1694.2	200	150.0	75	125	Fail
56	Fe	45	60427.577	387906545	2.03	53957.9	5000	129.4	75	125	Fail
59	Co	72	238.263	2244898	1.13	28.2	200	105.1	75	125	
60	Ni	72	249.990	632994	0.21	51.9	200	99.0	75	125	
63	Cu	72	596.827	4125062	0.82	389.7	200	103.6	75	125	
66	Zn	72	3449.592	5123130	0.58	3101.9	200	173.8	75	125	Fail
75	As	72	255.148	292584	0.17	58.5	200	98.3	75	125	
78	Se	72	210.294	18008	1.13	4.1	200	103.1	75	125	
88	Sr	115	620.424	3915872	1.55	379.3	200	120.6	75	125	
95	Mo	115	201.202	839749	0.47	6.1	200	97.6	75	125	
107	Ag	115	175.362	2280832	4.98	0.8	200	87.3	75	125	
111	Cd	115	201.304	434901	0.85	7.2	200	97.1	75	125	
118	Sn	115	241.853	1185983	0.06	33.1	200	104.4	75	125	
121	Sb	115	242.073	1902433	0.31	39.6	200	101.2	75	125	
137	Ba	115	1327.320	3407147	0.95	1070.5	200	128.4	75	125	Fail
205	Tl	209	199.435	5775417	0.97	0.5	200	99.4	75	125	
208	Pb	209	3734.993	143231672	1.11	3368.1	200	183.4	75	125	Fail

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1527280	1.66	1522183	100.33	70	120	
72	Ge	1038237	0.99	1074520	96.62	70	120	
115	In	10926767	0.90	11514007	94.90	70	120	
209	Bi	20707521	1.07	22396997	92.46	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/29/2014 15:52	Sample Name	1405322-01A MS
Data Batch	140529.b	Comment	MS ICPMS_TS
Data File Name	183_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	179.101	10223	0.89	2.6	200	88.3	80	120	
11	B	45	138.340	7456	2.00	-53.1	200	95.7	80	120	
23	Na	45	1231.472	996307	1.17	353.4	1000	87.8	80	120	
24	Mg	45	12811.385	5165739	0.86	10093.9	1000	271.7	80	120	Fail
27	Al	45	68619.929	14629353	1.73	50974.7	1000	1764.5	80	120	Fail
39	K	45	6382.660	3146394	1.31	4672.4	1000	171.0	80	120	Fail
44	Ca	45	########	3312489	1.33	136217.5	1000	#####	80	120	Fail
47	Ti	45	678.852	119147	5.68	656.7	200	11.1	80	120	Fail
51	V	45	327.680	1806082	0.25	93.5	200	117.1	80	120	
52	Cr	45	355.993	2288740	1.84	176.6	200	89.7	80	120	
55	Mn	45	1941.672	8541942	1.35	1694.2	200	123.7	80	120	Fail
56	Fe	45	68868.723	432753041	2.09	53957.9	1000	1491.1	80	120	Fail
59	Co	72	230.744	2169156	0.70	28.2	200	101.3	80	120	
60	Ni	72	246.183	621981	0.74	51.9	200	97.1	80	120	
63	Cu	72	587.519	4051622	1.65	389.7	200	98.9	80	120	
66	Zn	72	2889.005	4280770	1.00	3101.9	200	-106.4	80	120	Fail
75	As	72	263.882	301913	0.51	58.5	200	102.7	80	120	
78	Se	72	203.688	17406	0.69	4.1	200	99.8	80	120	
88	Sr	115	562.121	3554677	1.02	379.3	200	91.4	80	120	
95	Mo	115	187.402	783691	1.11	6.1	200	90.7	80	120	
107	Ag	115	191.315	2492492	2.16	0.8	200	95.3	80	120	
111	Cd	115	194.236	420449	0.38	7.2	200	93.5	80	120	
118	Sn	115	243.765	1197681	0.53	33.1	200	105.3	80	120	
121	Sb	115	140.816	1108956	1.09	39.6	200	50.6	80	120	Fail
137	Ba	115	1175.633	3023527	0.48	1070.5	200	52.5	80	120	Fail
205	Tl	209	194.512	5697940	0.82	0.5	200	97.0	80	120	
208	Pb	209	3175.807	123196477	0.57	3368.1	200	-96.2	80	120	Fail

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1495044	2.04	1522183	98.22	70	120	
72	Ge	1035845	0.36	1074520	96.40	70	120	
115	In	10947697	0.88	11514007	95.08	70	120	
209	Bi	20943714	0.38	22396997	93.51	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	5/29/2014 15:54	Sample Name	1405322-01A MSD
Data Batch	140529.b	Comment	MSD ICPMS_TS
Data File Name	184_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	180.716	10236	0.60	2.6	200	89.1	80	120	
11	B	45	138.438	7401	3.00	-53.1	200	95.8	80	120	
23	Na	45	1276.006	1022102	2.43	353.4	1000	92.3	80	120	
24	Mg	45	12789.600	5117494	2.77	10093.9	1000	269.6	80	120	Fail
27	Al	45	65916.115	13943462	0.94	50974.7	1000	1494.1	80	120	Fail
39	K	45	6604.994	3229101	2.21	4672.4	1000	193.3	80	120	Fail
44	Ca	45	########	3628263	1.68	136217.5	1000	-992.6	80	120	Fail
47	Ti	45	691.953	120592	3.59	656.7	200	17.6	80	120	Fail
51	V	45	309.968	1695720	1.21	93.5	200	108.2	80	120	
52	Cr	45	358.407	2287273	1.83	176.6	200	90.9	80	120	
55	Mn	45	1861.028	8123881	1.32	1694.2	200	83.4	80	120	
56	Fe	45	65915.102	410989735	1.27	53957.9	1000	1195.7	80	120	Fail
59	Co	72	225.132	2107192	0.26	28.2	200	98.5	80	120	
60	Ni	72	237.028	596338	0.79	51.9	200	92.6	80	120	
63	Cu	72	546.615	3753193	0.66	389.7	200	78.5	80	120	Fail
66	Zn	72	3216.837	4746095	0.83	3101.9	200	57.5	80	120	Fail
75	As	72	245.957	280206	0.71	58.5	200	93.7	80	120	
78	Se	72	200.922	17097	0.49	4.1	200	98.4	80	120	
88	Sr	115	592.990	3748119	2.04	379.3	200	106.9	80	120	
95	Mo	115	184.537	771332	0.52	6.1	200	89.2	80	120	
107	Ag	115	193.326	2517546	0.70	0.8	200	96.3	80	120	
111	Cd	115	193.349	418319	1.15	7.2	200	93.1	80	120	
118	Sn	115	237.538	1166584	0.52	33.1	200	102.2	80	120	
121	Sb	115	79.508	625956	0.45	39.6	200	19.9	80	120	Fail
137	Ba	115	1072.305	2756339	2.85	1070.5	200	0.9	80	120	Fail
205	Tl	209	195.721	5641381	1.50	0.5	200	97.6	80	120	
208	Pb	209	3164.412	120774569	0.37	3368.1	200	-101.9	80	120	Fail

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1483321	0.77	1522183	97.45	70	120	
72	Ge	1031406	1.00	1074520	95.99	70	120	
115	In	10943447	1.37	11514007	95.04	70	120	
209	Bi	20607985	1.38	22396997	92.01	70	120	

Dilution Sample (Dil) Report

Date Acquired	5/29/2014 15:57	Sample Name	1405322-01A SD
Data Batch	140529.b	Comment	SD ICPMS_TS
Data File Name	186_SD.d	Dilution	250

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
9	Be	45	0.049	3	91.65	0.3	84.2	110	90	
11	B	45	-91.220	1327	4.20	-88.3	516.4	110	90	
23	Na	45	-10.307	57587	1.95	13.8	-374.6	110	90	
24	Mg	45	202.628	80245	0.36	1013.4	100.0	110	90	Good
27	Al	45	1005.538	208777	1.72	4895.5	102.7	110	90	Good
39	K	45	81.357	101607	0.42	421.7	96.5	110	90	Good
44	Ca	45	2625.476	74207	1.93	13056.8	100.5	110	90	Good
47	Ti	45	8.552	1471	12.22	50.8	84.2	110	90	
51	V	45	1.754	11619	2.74	9.0	97.2	110	90	Good
52	Cr	45	3.318	23657	0.38	17.3	96.0	110	90	Good
55	Mn	45	32.733	140429	0.84	162.6	100.7	110	90	Good
56	Fe	45	1071.672	6567892	0.82	5365.8	99.9	110	90	Good
59	Co	72	0.554	5400	2.01	2.9	95.6	110	90	Good
60	Ni	72	0.575	3255	6.54	4.9	59.1	110	90	
63	Cu	72	7.978	55748	0.95	39.9	100.0	110	90	Good
66	Zn	72	60.976	89679	0.63	310.2	98.3	110	90	Good
75	As	72	1.114	1480	1.09	5.8	96.1	110	90	Good
78	Se	72	0.360	120	5.68	0.7	255.1	110	90	
88	Sr	115	6.934	43835	1.07	36.0	96.4	110	90	Good
95	Mo	115	0.122	561	9.07	0.6	95.8	110	90	Good
107	Ag	115	0.040	546	5.68	0.1	143.2	110	90	
111	Cd	115	0.158	391	9.35	0.7	108.1	110	90	Good
118	Sn	115	0.584	3714	3.43	3.2	90.0	110	90	
121	Sb	115	0.695	5732	1.46	3.8	90.4	110	90	Good
137	Ba	115	19.439	49929	0.80	99.8	97.4	110	90	Good
205	Tl	209	0.061	2335	3.51	0.2	169.1	110	90	
208	Pb	209	65.426	2519894	0.63	333.3	98.2	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1454220	0.80	1522183	95.54	70	120	
72	Ge	1024075	0.55	1074520	95.31	70	120	
115	In	10921214	1.13	11514007	94.85	70	120	
209	Bi	20763138	0.81	22396997	92.71	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	5/29/2014 15:59	Sample Name	1405322-01A PDS
Data Batch	140529.b	Comment	PDS ICPMS_TS
Data File Name	187_PDS.d	Dilution	50

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	187.781	10533	0.81	0.3	200	93.7	75	125	
11	B	45	100.613	6345	3.65	-88.3	200	94.5	75	125	
23	Na	45	5170.240	3900452	2.54	13.8	5000	103.1	75	125	
24	Mg	45	6393.160	2533464	0.92	1013.4	5000	107.6	75	125	
27	Al	45	10219.167	2140630	2.04	4895.5	5000	106.5	75	125	
39	K	45	6175.556	2994675	3.28	421.7	5000	115.1	75	125	
44	Ca	45	18747.308	533602	0.55	13056.8	5000	113.8	75	125	
47	Ti	45	264.151	45586	3.35	50.8	200	106.7	75	125	
51	V	45	204.884	1110586	0.42	9.0	200	97.9	75	125	
52	Cr	45	220.067	1391895	0.97	17.3	200	101.4	75	125	
55	Mn	45	385.965	1668699	1.08	162.6	200	111.7	75	125	
56	Fe	45	10126.903	62545980	0.34	5365.8	5000	95.2	75	125	
59	Co	72	214.512	1979638	0.38	2.9	200	105.8	75	125	
60	Ni	72	206.364	512127	1.38	4.9	200	100.7	75	125	
63	Cu	72	244.223	1654234	1.07	39.9	200	102.2	75	125	
66	Zn	72	503.986	733396	0.53	310.2	200	96.9	75	125	
75	As	72	201.242	226073	0.90	5.8	200	97.7	75	125	
78	Se	72	209.415	17564	1.30	0.7	200	104.4	75	125	
88	Sr	115	263.901	1628253	0.76	36.0	200	114.0	75	125	
95	Mo	115	195.120	796002	0.13	0.6	200	97.2	75	125	
107	Ag	115	79.984	1016746	1.70	0.1	200	39.9	75	125	Fail
111	Cd	115	198.855	419946	0.33	0.7	200	99.1	75	125	
118	Sn	115	212.715	1019766	0.61	3.2	200	104.7	75	125	
121	Sb	115	192.163	1476272	0.25	3.8	200	94.2	75	125	
137	Ba	115	308.290	773599	0.73	99.8	200	104.2	75	125	
205	Tl	209	198.196	5696262	0.29	0.2	200	99.0	75	125	
208	Pb	209	544.217	20716416	0.35	333.3	200	105.5	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1469089	1.74	1522183	96.51	70	120	
72	Ge	1016903	0.83	1074520	94.64	70	120	
115	In	10681449	1.37	11514007	92.77	70	120	
209	Bi	20551075	1.26	22396997	91.76	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	5/29/2014 16:01	Sample Name	CCV9-140529
Data Batch	140529.b	Comment	CCV ICPMS_TW
Data File Name	188_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	181.781	10038	2.28	200	90.9	90	110	
11	B	45	138.670	7219	0.92	200	69.3	90	110	Fail
23	Na	45	4652.973	3461678	0.83	5000	93.1	90	110	
24	Mg	45	4745.721	1851562	0.82	5000	94.9	90	110	
27	Al	45	5028.207	1036888	0.55	5000	100.6	90	110	
39	K	45	5151.035	2468311	0.08	5000	103.0	90	110	
44	Ca	45	5315.862	149115	0.43	5000	106.3	90	110	
47	Ti	45	210.722	35805	1.37	200	105.4	90	110	
51	V	45	193.478	1032417	0.63	200	96.7	90	110	
52	Cr	45	193.232	1203263	0.22	200	96.6	90	110	
55	Mn	45	191.676	815862	0.56	200	95.8	90	110	
56	Fe	45	4786.424	29104697	1.17	5000	95.7	90	110	
59	Co	72	202.636	1859157	2.31	200	101.3	90	110	
60	Ni	72	196.277	484288	0.30	200	98.1	90	110	
63	Cu	72	194.118	1307253	0.50	200	97.1	90	110	
66	Zn	72	190.071	275171	0.57	200	95.0	90	110	
75	As	72	193.027	215574	0.05	200	96.5	90	110	
78	Se	72	203.780	16995	1.77	200	101.9	90	110	
88	Sr	115	218.354	1336393	0.15	200	109.2	90	110	
95	Mo	115	207.038	837844	0.42	200	103.5	90	110	
107	Ag	115	197.176	2486107	0.13	200	98.6	90	110	
111	Cd	115	194.495	407465	0.35	200	97.2	90	110	
118	Sn	115	208.303	990600	0.83	200	104.2	90	110	
121	Sb	115	194.744	1484130	0.69	200	97.4	90	110	
137	Ba	115	199.979	497764	0.69	200	100.0	90	110	
205	Tl	209	194.482	5602720	1.70	200	97.2	90	110	
208	Pb	209	199.298	7606201	0.53	200	99.6	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1445961	1.46	1522183	94.99	70	120	
72	Ge	1010881	0.73	1074520	94.08	70	120	
115	In	10597760	2.01	11514007	92.04	70	120	
209	Bi	20596380	1.02	22396997	91.96	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	5/29/2014 16:05	Sample Name	LCVL9-140529
Data Batch	140529.b	Comment	LCVLICPMS_TW
Data File Name	190LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.860	49	26.53	1	86.0	70	130	
11	B	45	-77.728	1699	12.52	20	-388.6	70	130	Fail
23	Na	45	77.234	123536	0.29	100	77.2	70	130	
24	Mg	45	100.292	40657	0.50	100	100.3	70	130	
27	Al	45	85.810	18312	1.44	100	85.8	70	130	
39	K	45	94.086	109058	0.83	100	94.1	70	130	
44	Ca	45	100.632	3136	2.38	100	100.6	70	130	
47	Ti	45	4.700	824	10.67	5	94.0	70	130	
51	V	45	0.888	7077	1.44	1	88.8	70	130	
52	Cr	45	4.475	31316	1.48	5	89.5	70	130	
55	Mn	45	4.470	19750	1.18	5	89.4	70	130	
56	Fe	45	82.600	529283	0.96	100	82.6	70	130	
59	Co	72	4.782	43956	2.02	5	95.6	70	130	
60	Ni	72	4.365	12484	1.17	5	87.3	70	130	
63	Cu	72	4.682	32733	1.14	5	93.6	70	130	
66	Zn	72	4.590	6966	0.69	5	91.8	70	130	
75	As	72	4.544	5269	1.59	5	90.9	70	130	
78	Se	72	5.353	530	6.24	5	107.1	70	130	
88	Sr	115	4.993	30670	2.07	5	99.9	70	130	
95	Mo	115	4.565	18545	0.27	5	91.3	70	130	
107	Ag	115	1.767	22327	1.68	2	88.4	70	130	
111	Cd	115	1.011	2167	6.86	1	101.1	70	130	
118	Sn	115	4.833	23814	1.10	5	96.7	70	130	
121	Sb	115	1.797	13982	3.53	2	89.9	70	130	
137	Ba	115	4.716	11810	2.07	5	94.3	70	130	
205	Tl	209	0.967	28294	2.39	1	96.7	70	130	
208	Pb	209	1.351	55268	1.18	1	135.1	70	130	Fail

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1474236	1.43	1522183	96.85	70	120	
72	Ge	1007224	0.52	1074520	93.74	70	120	
115	In	10608117	2.23	11514007	92.13	70	120	
209	Bi	20525921	1.23	22396997	91.65	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	5/29/2014 16:07	Sample Name	CCB9-140529
Data Batch	140529.b	Comment	CCB ICPMS_TW
Data File Name	191_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.026	2	132.3	0.4	0.3	
11	B	45	-98.481	1124	14.1	10	10	
23	Na	45	-18.879	50577	0.8	50	100	
24	Mg	45	-1.126	323	1.0	50	100	
27	Al	45	-0.351	198	12.0	50	10	
39	K	45	-8.011	58808	0.5	50	100	
44	Ca	45	-0.463	242	12.7	50	100	
47	Ti	45	-0.030	6	124.9	4	3	
51	V	45	0.027	2337	3.2	4	3	
52	Cr	45	-0.184	1756	4.7	2	2	
55	Mn	45	0.029	470	23.0	2	3	
56	Fe	45	-0.598	13397	3.7	50	50	
59	Co	72	0.004	283	8.5	2	3	
60	Ni	72	-0.483	604	5.6	2	3	
63	Cu	72	-0.028	1153	3.8	2	2	
66	Zn	72	0.085	472	19.8	4	2	
75	As	72	-0.031	182	6.3	2	2	
78	Se	72	0.388	119	10.2	1	2	
88	Sr	115	0.066	500	9.3	4	3	
95	Mo	115	0.003	63	24.1	2	2	
107	Ag	115	0.019	261	7.7	0.4	1	
111	Cd	115	0.001	51	44.4	0.4	0.3	
118	Sn	115	-0.029	692	2.7	4	3	
121	Sb	115	0.042	589	6.6	2	0.8	
137	Ba	115	0.030	133	31.2	2	3	
205	Tl	209	0.031	1435	13.7	2	0.5	
208	Pb	209	0.326	16419	5.5	0.4	0.3	FailAq

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1434309	1.90	1522183	94.23	70	120	
72	Ge	998348	0.79	1074520	92.91	70	120	
115	In	10621706	1.27	11514007	92.25	70	120	
209	Bi	20663410	3.02	22396997	92.26	70	120	

ICP-MS4_140605B
For

DHL Work Order
1405261

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS4_140605B SOP: Metals-ICP-MS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			
P/A Factor	Before ICAL	Increasing trend	X			
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			
ICSAB (N/A for Method 200.8)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLS and ICSA/ICSAB is N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%			X	
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%	X			
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%		X		
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)	X			
Dilution Test (SD) - RPD	Every Batch	10		X		
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)		X		

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> 5% of highest standard	X			
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality			X	
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

TECHNICAL DIRECTOR / QA MANAGER APPROVAL
SIGNATURE AND DATE STAMP:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> MDL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag data / Case narrative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

See Notes in Run Log

Analyst:  Date of Completion: 6/5/2014

Second Level Review: Reviewer Date Stamp:

DHL Analytical, Inc.

Run ID: ICP-MS4_140605B **Run No.:** 73559

Analytical Run Date: 6/5/2014 **InstrumentID:** ICP-MS4

Analyst: Sara Wieland

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TW	CAL	R73559	6/5/2014 10:06:00 AM		
Cal01	1	ICPMS_TW	CAL	R73559	6/5/2014 10:08:00 AM		
Cal02	1	ICPMS_TW	CAL	R73559	6/5/2014 10:10:00 AM		
Cal03	1	ICPMS_TW	CAL	R73559	6/5/2014 10:12:00 AM		
Cal04	1	ICPMS_TW	CAL	R73559	6/5/2014 10:14:00 AM		
Cal05	1	ICPMS_TW	CAL	R73559	6/5/2014 10:16:00 AM		
Cal06	1	ICPMS_TW	CAL	R73559	6/5/2014 10:18:00 AM		
Cal07	1	ICPMS_TW	CAL	R73559	6/5/2014 10:20:00 AM		
ICSA-140605	1	ICPMS_TW	ICSA	R73559	6/5/2014 10:25:00 AM		
ICSAB-140605	1	ICPMS_TW	ICSB	R73559	6/5/2014 10:27:00 AM		
ICV-140605	1	ICPMS_TW	ICV	R73559	6/5/2014 10:38:00 AM		
LCVL-140605	1	ICPMS_TW	LCVL	R73559	6/5/2014 10:43:00 AM		
ICB-140605	1	ICPMS_TW	ICB	R73559	6/5/2014 10:47:00 AM		
MB-63949	5	ICPMS_TS	MBLK	63949	6/5/2014 10:56:00 AM		
LCS-63949	5	ICPMS_TS	LCS	63949	6/5/2014 10:58:00 AM		
LCSD-63949	5	ICPMS_TS	LCSD	63949	6/5/2014 10:59:00 AM		
1405376-03A	5	ICPMS_TS	SAMP	63949	6/5/2014 11:03:00 AM		DNR: QC reference only
1405376-03A SD	25	ICPMS_TS	SD	63949	6/5/2014 11:05:00 AM		R-flag Se; PDS passes, data accepted
1405327-01A	5	ICPMS_TS	SAMP	63949	6/5/2014 11:22:00 AM		
1405376-03A PDS	5	ICPMS_TS	PDS	63949	6/5/2014 11:24:00 AM		S-flag Ba, Ag; SD passes, data accepted
1405376-03A MS	5	ICPMS_TS	MS	63949	6/5/2014 11:26:00 AM		S-flag Ba
1405376-03A MSD	5	ICPMS_TS	MSD	63949	6/5/2014 11:28:00 AM		S-flag Ba
CCV1-140605	1	ICPMS_TW	CCV	R73559	6/5/2014 11:30:00 AM		
LCVL1-140605	1	ICPMS_TW	LCVL	R73559	6/5/2014 11:33:00 AM		
CCB1-140605	1	ICPMS_TW	CCB	R73559	6/5/2014 11:35:00 AM		
1405293-01C	5	ICPMS_TS	SAMP	63949	6/5/2014 11:37:00 AM		
1405293-02C	5	ICPMS_TS	SAMP	63949	6/5/2014 11:39:00 AM		
1405293-03C	5	ICPMS_TS	SAMP	63949	6/5/2014 11:41:00 AM		
1405293-04C	5	ICPMS_TS	SAMP	63949	6/5/2014 11:43:00 AM		
1405293-05C	5	ICPMS_TS	SAMP	63949	6/5/2014 11:45:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140401	ICPMS CCV 200/5000 PPB		06/30/2014
MET-H2CAL-1404	ICPMS High Cal2 2000ppb std 8		07/24/2014
MET-HCAL-14042	ICPMS High Cal 500ppb/10ppm s		07/24/2014
MET-ICV-140317	ICPMS ICV 100 ppb		06/15/2014
MET-IS-140416	INTERNAL STANDARD 1 PPM		07/15/2014
MET-L2CAL-14042	ICPMS Low Cal2 1/20ppb std 2		07/24/2014
MET-LCAL-140425	ICPMS Low Cal 10/200ppb std 3		07/24/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		07/24/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		07/24/2014
MET-MCAL-14042	ICPMS Mid Cal 250/5000ppb std		07/24/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140527-	250 PPM Naturals+Al+Fe PDS		08/25/2014
MET-PDS-140527-	10 PPM CUSTOM PDS SOLUTI		08/25/2014
MET-PDS-140527-	10 PPM Ag+Sb PDS		08/25/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		07/15/2014

DHL Analytical, Inc.

Run ID: ICP-MS4_140605B **Run No.:** 73559

1405293-06C	5	ICPMS_TS	SAMP	63949	6/5/2014 11:47:00 AM		
CCV2-140605	1	ICPMS_TW	CCV	R73559	6/5/2014 11:49:00 AM		
LCVL2-140605	1	ICPMS_TW	LCVL	R73559	6/5/2014 11:53:00 AM		
CCB2-140605	1	ICPMS_TW	CCB	R73559	6/5/2014 11:55:00 AM		
MB-63954	1	ICPMS_DW	MBLK	63954	6/5/2014 11:57:00 AM		
LCS-63954	1	ICPMS_DW	LCS	63954	6/5/2014 12:03:00 PM		
LCSD-63954	1	ICPMS_DW	LCSD	63954	6/5/2014 12:05:00 PM		
1405324-01B	1	ICPMS_DW	SAMP	63954	6/5/2014 12:08:00 PM		
1405324-01B SD	5	ICPMS_DW	SD	63954	6/5/2014 12:10:00 PM		
1405324-02B	1	ICPMS_DW	SAMP	63954	6/5/2014 12:12:00 PM		
1405324-01B PDS	1	ICPMS_DW	PDS	63954	6/5/2014 12:24:00 PM		
1405324-01B MS	1	ICPMS_DW	MS	63954	6/5/2014 12:26:00 PM		
1405324-01B MSD	1	ICPMS_DW	MSD	63954	6/5/2014 12:28:00 PM		
1405337-01A	10	200.8	SAMP	63901	6/5/2014 12:30:00 PM		
CCV3-140605	1	ICPMS_TW	CCV	R73559	6/5/2014 12:32:00 PM		
LCVL3-140605	1	ICPMS_TW	LCVL	R73559	6/5/2014 12:35:00 PM		
CCB3-140605	1	ICPMS_TW	CCB	R73559	6/5/2014 12:37:00 PM		
MB-63971	1	ICPMS_DW10	MBLK	63971	6/5/2014 12:39:00 PM		
LCS-63971	1	ICPMS_DW10	LCS	63971	6/5/2014 12:41:00 PM		
LCSD-63971	1	ICPMS_DW10	LCSD	63971	6/5/2014 12:43:00 PM		
1405311-01B	1	ICPMS_DW10	SAMP	63971	6/5/2014 12:47:00 PM		
1405311-01B SD	5	ICPMS_DW10	SD	63971	6/5/2014 12:49:00 PM		
1405311-02B	1	ICPMS_DW10	SAMP	63971	6/5/2014 12:51:00 PM		
1405311-03B	1	ICPMS_DW10	SAMP	63971	6/5/2014 12:53:00 PM		
1405311-04B	1	ICPMS_DW10	SAMP	63971	6/5/2014 12:55:00 PM		
1405311-05B	1	ICPMS_DW10	SAMP	63971	6/5/2014 12:57:00 PM		
1405311-01B PDS	1	ICPMS_DW10	PDS	63971	6/5/2014 12:59:00 PM		
1405311-01B MS	1	ICPMS_DW10	MS	63971	6/5/2014 1:00:00 PM		
1405311-01B MSD	1	ICPMS_DW10	MSD	63971	6/5/2014 1:02:00 PM		
CCV4-140605	1	ICPMS_TW	CCV	R73559	6/5/2014 1:04:00 PM		
LCVL4-140605	1	ICPMS_TW	LCVL	R73559	6/5/2014 1:08:00 PM		
CCB4-140605	1	ICPMS_TW	CCB	R73559	6/5/2014 1:10:00 PM		
MB-63877	1	ICPMS_TW	MBLK	63877	6/5/2014 1:12:00 PM		
LCS-63877	1	ICPMS_TW	LCS	63877	6/5/2014 1:14:00 PM		
LCSD-63877	1	ICPMS_TW	LCSD	63877	6/5/2014 1:16:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140401	ICPMS CCV 200/5000 PPB		06/30/2014
MET-H2CAL-1404	ICPMS High Cal2 2000ppb std 8		07/24/2014
MET-HCAL-14042	ICPMS High Cal 500ppb/10ppm s		07/24/2014
MET-ICV-140317	ICPMS ICV 100 ppb		06/15/2014
MET-IS-140416	INTERNAL STANDARD 1 PPM		07/15/2014
MET-L2CAL-14042	ICPMS Low Cal2 1/20ppb std 2		07/24/2014
MET-LCAL-140425	ICPMS Low Cal 10/200ppb std 3		07/24/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		07/24/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		07/24/2014
MET-MCAL-14042	ICPMS Mid Cal 250/5000ppb std		07/24/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140527-	250 PPM Naturals+Al+Fe PDS		08/25/2014
MET-PDS-140527-	10 PPM CUSTOM PDS SOLUTI		08/25/2014
MET-PDS-140527-	10 PPM Ag+Sb PDS		08/25/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		07/15/2014

DHL Analytical, Inc.

Run ID: ICP-MS4_140605B **Run No.:** 73559

1405261-24A	1	ICPMS_TW	SAMP	63877	6/5/2014 1:20:00 PM		DNR: QC reference only
1405261-24A SD	5	ICPMS_TW	SD	63877	6/5/2014 1:22:00 PM		R-flag Se; PDS passes, data accepted.
1405300-01A	1	ICPMS_TW	SAMP	63877	6/5/2014 1:24:00 PM		
1405300-02A	1	ICPMS_TW	SAMP	63877	6/5/2014 1:25:00 PM		
1405300-03A	1	ICPMS_TW	SAMP	63877	6/5/2014 1:27:00 PM		
1405300-04A	1	ICPMS_TW	SAMP	63877	6/5/2014 1:29:00 PM		
1405300-05A	1	ICPMS_TW	SAMP	63877	6/5/2014 1:31:00 PM		
1405300-06A	1	ICPMS_TW	SAMP	63877	6/5/2014 1:33:00 PM		
1405300-07A	1	ICPMS_TW	SAMP	63877	6/5/2014 1:35:00 PM		
1405300-08A	1	ICPMS_TW	SAMP	63877	6/5/2014 1:37:00 PM		
1405300-09A	1	ICPMS_TW	SAMP	63877	6/5/2014 1:39:00 PM		
1405300-10A	1	ICPMS_TW	SAMP	63877	6/5/2014 1:41:00 PM		
1405261-24A PDS	1	ICPMS_TW	PDS	63877	6/5/2014 1:43:00 PM		S-flag B; SD passes, data accepted.
1405261-24A MS	1	ICPMS_TW	MS	63877	6/5/2014 1:45:00 PM		
1405261-24A MSD	1	ICPMS_TW	MSD	63877	6/5/2014 1:47:00 PM		
CCV5-140605	1	ICPMS_TW	CCV	R73559	6/5/2014 1:48:00 PM		
LCVL5-140605	1	ICPMS_TW	LCVL	R73559	6/5/2014 1:52:00 PM		
CCB5-140605	1	ICPMS_TW	CCB	R73559	6/5/2014 1:54:00 PM		
MB-63851	1	ICPMS_TW	MBLK	63851	6/5/2014 1:56:00 PM		
LCS-63851	1	ICPMS_TW	LCS	63851	6/5/2014 1:58:00 PM		
LCSD-63851	1	ICPMS_TW	LCSD	63851	6/5/2014 2:00:00 PM		
1405265-16A	10	ICPMS_TW	SAMP	63851	6/5/2014 2:04:00 PM		DNR: QC reference only
1405265-16A SD	50	ICPMS_TW	SD	63851	6/5/2014 2:06:00 PM		R-flag B; PDS passes, data accepted.
1405311-01A	1	ICPMS_TW	SAMP	63851	6/5/2014 2:08:00 PM		
1405311-02A	1	ICPMS_TW	SAMP	63851	6/5/2014 2:10:00 PM		
1405311-03A	1	ICPMS_TW	SAMP	63851	6/5/2014 2:12:00 PM		
1405311-04A	1	ICPMS_TW	SAMP	63851	6/5/2014 2:14:00 PM		
1405311-05A	1	ICPMS_TW	SAMP	63851	6/5/2014 2:16:00 PM		
1405265-16A PDS	10	ICPMS_TW	PDS	63851	6/5/2014 2:18:00 PM		
1405265-16AMS	10	ICPMS_TW	MS	63851	6/5/2014 2:20:00 PM		S-flag B
1405265-16AMSD	10	ICPMS_TW	MSD	63851	6/5/2014 2:21:00 PM		
CCV6-140402	1	ICPMS_TW	CCV	R73559	6/5/2014 2:27:00 PM		
LCVL6-140402	1	ICPMS_TW	LCVL	R73559	6/5/2014 2:31:00 PM		
CCB6-140402	1	ICPMS_TW	CCB	R73559	6/5/2014 2:33:00 PM		
MB-63952	1	ICPMS_TW	MBLK	63952	6/5/2014 2:35:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140401	ICPMS CCV 200/5000 PPB		06/30/2014
MET-H2CAL-1404	ICPMS High Cal2 2000ppb std 8		07/24/2014
MET-HCAL-14042	ICPMS High Cal 500ppb/10ppm s		07/24/2014
MET-ICV-140317	ICPMS ICV 100 ppb		06/15/2014
MET-IS-140416	INTERNAL STANDARD 1 PPM		07/15/2014
MET-L2CAL-14042	ICPMS Low Cal2 1/20ppb std 2		07/24/2014
MET-LCAL-140425	ICPMS Low Cal 10/200ppb std 3		07/24/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		07/24/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		07/24/2014
MET-MCAL-14042	ICPMS Mid Cal 250/5000ppb std		07/24/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140527-	250 PPM Naturals+Al+Fe PDS		08/25/2014
MET-PDS-140527-	10 PPM CUSTOM PDS SOLUTI		08/25/2014
MET-PDS-140527-	10 PPM Ag+Sb PDS		08/25/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		07/15/2014

DHL Analytical, Inc.

Run ID: ICP-MS4_140605B **Run No.:** 73559

LCS-63952	1	ICPMS_TW	LCS	63952	6/5/2014 2:41:00 PM		
LCSD-63952	1	ICPMS_TW	LCSD	63952	6/5/2014 2:43:00 PM		
1405381-01A	1	ICPMS_TW	SAMP	63952	6/5/2014 2:47:00 PM		
1405381-01A SD	5	ICPMS_TW	SD	63952	6/5/2014 2:49:00 PM		
1405381-02A	1	ICPMS_TW	SAMP	63952	6/5/2014 2:50:00 PM		
1405381-01A PDS	1	ICPMS_TW	PDS	63952	6/5/2014 3:08:00 PM		
1405381-01A MS	1	ICPMS_TW	MS	63952	6/5/2014 3:10:00 PM		
1405381-01A MSD	1	ICPMS_TW	MSD	63952	6/5/2014 3:12:00 PM		
CCV7-140402	1	ICPMS_TW	CCV	R73559	6/5/2014 3:14:00 PM		
LCVL7-140402	1	ICPMS_TW	LCVL	R73559	6/5/2014 3:17:00 PM		
CCB7-140402	1	ICPMS_TW	CCB	R73559	6/5/2014 3:21:00 PM		
1405371-01C	1	ICPMS_TW	SAMP	63952	6/5/2014 3:23:00 PM		
1405371-02C	1	ICPMS_TW	SAMP	63952	6/5/2014 3:25:00 PM		
1405371-03C	1	ICPMS_TW	SAMP	63952	6/5/2014 3:27:00 PM		
1405379-01A	1	ICPMS_TW	SAMP	63952	6/5/2014 3:29:00 PM		
1405380-01A	1	ICPMS_TW	SAMP	63952	6/5/2014 3:31:00 PM		
CCV8-140402	1	ICPMS_TW	CCV	R73559	6/5/2014 3:33:00 PM		
LCVL8-140402	1	ICPMS_TW	LCVL	R73559	6/5/2014 3:37:00 PM		
CCB8-140402	1	ICPMS_TW	CCB	R73559	6/5/2014 3:39:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140401	ICPMS CCV 200/5000 PPB		06/30/2014
MET-H2CAL-1404	ICPMS High Cal2 2000ppb std 8		07/24/2014
MET-HCAL-14042	ICPMS High Cal 500ppb/10ppm s		07/24/2014
MET-ICV-140317	ICPMS ICV 100 ppb		06/15/2014
MET-IS-140416	INTERNAL STANDARD 1 PPM		07/15/2014
MET-L2CAL-14042	ICPMS Low Cal2 1/20ppb std 2		07/24/2014
MET-LCAL-140425	ICPMS Low Cal 10/200ppb std 3		07/24/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		07/24/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		07/24/2014
MET-MCAL-14042	ICPMS Mid Cal 250/5000ppb std		07/24/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140527-	250 PPM Naturals+Al+Fe PDS		08/25/2014
MET-PDS-140527-	10 PPM CUSTOM PDS SOLUTI		08/25/2014
MET-PDS-140527-	10 PPM Ag+Sb PDS		08/25/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		07/15/2014

Sample List

Batch Folder C:\Agilent\ICPMH\1\DATA\140605.b

Acquisition Order

#	Sequence Flow
1	Calibration Standards
2	Unknown Samples
3	Blank Samples

Calibration Standards:

#	Sample Type	Sample Name	Comment	Vial#	File Name
1	CCB		CAL ICPMS_TW	1101	
2	CCB		CAL ICPMS_TW	1101	
3	CCB		CAL ICPMS_TW	1101	
4	CCB		CAL ICPMS_TW	1102	
5	CCB		CAL ICPMS_TW	1102	
6	CCB		CAL ICPMS_TW	1102	
7	CCB		CAL ICPMS_TW	1102	
8	CCB		CAL ICPMS_TW	1103	
9	CCB		CAL ICPMS_TW	1103	
10	CCB		CAL ICPMS_TW	1103	
11	CalBlk	BLANK STD 1	CAL ICPMS_TW	2101	
12	CalStd	Cal01	CAL ICPMS_TW	2102	
13	CalStd	Cal02	CAL ICPMS_TW	2103	
14	CalStd	Cal03	CAL ICPMS_TW	2104	
15	CalStd	Cal04	CAL ICPMS_TW	2105	
16	CalStd	Cal05	CAL ICPMS_TW	2106	
17	CalStd	Cal06	CAL ICPMS_TW	2107	
18	CalStd	Cal07	CAL ICPMS_TW	2108	
19	ICB	BLANK	CCB ICPMS_TW	1101	
20	ICB	BLANK	CCB ICPMS_TW	1102	

#	Level	Dilution	Skip	ISTD Conc
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11	1			
12	2			
13	3			
14	4			
15	5			
16	6			
17	7			
18	8			
19				

Sample List

#	Sample Type	Sample Name	Comment	Vial#	File Name
20					
21	ICSA	ICSA-140605	ICSAICPMS_TW	2109	
22	ICSB	ICSAB-140605	ICSBICPMS_TW	2110	
23	ICB	BLANK	CCB ICPMS_TW	1101	
24	ICB	BLANK	CCB ICPMS_TW	1102	
25	ICV	ICV-140605	ICV ICPMS_TW	2111	
26	ICV	ICV-140605	ICV ICPMS_TW	1207	
27	ICV	ICV-140605	ICV ICPMS_TW	2111	
28	ICB	ICB-140605	ICB ICPMS_TW	1101	
29	LLICV	LCVL-140605	LCVLICPMS_TW	2112	
30	ICB	ICB-140605	ICB ICPMS_TW	1102	
31	ICB	ICB-140605	ICB ICPMS_TW	1103	
32	PB	MB-63949	MBLK6020A_S	2201	
33	LCS_S	LCS-63949	LCS 6020A_S	2202	
34	LCS_S	LCSD-63949	LCSD6020A_S	2203	
35	CCB	RINSE	CCB ICPMS_TW	1101	
36	AllRef	1405376-03A	SAMP6020A_S	2204	
37	SD	1405376-03A SD	SD 6020A_S	2205	
38	Sample	1405376-05A	SAMP6020A_S	2206	
39	Sample	1405376-07A	SAMP6020A_S	2207	
40	Sample	1405376-08A	SAMP6020A_S	2208	

#	Level	Dilution	Skip	ISTD Conc
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32		5		
33		5		
34		5		
35				
36		5		
37		25		
38		5		
39		5		
40		5		

#	Sample Type	Sample Name	Comment	Vial#	File Name
41	Sample	1405376-11A	SAMP6020A_S	2209	
42	Sample	1405376-12A	SAMP6020A_S	2210	
43	Sample	1405376-14A	SAMP6020A_S	2211	
44	Sample	1405376-16A	SAMP6020A_S	2212	
45	Sample	1405376-18A	SAMP6020A_S	2301	

Sample List

46	Sample	1405327-01A	SAMPICPMS_TS	2302
47	PDS	1405376-03A PDS	PDS 6020A_S	2303
48	MS_S	1405376-03A MS	MS 6020A_S	2304
49	MS_S	1405376-03A MSD	MSD 6020A_S	2305
50	CCV	CCV1-140605	CCV ICPMS_TW	1207
51	CCB	CCB1-140605	CCB ICPMS_TW	1102
52	LLCCV	LCVL1-140605	LCVLICPMS_TW	2112
53	CCB	CCB1-140605	CCB ICPMS_TW	1103
54	Sample	1405293-01C	SAMPICPMS_TS	2306
55	Sample	1405293-02C	SAMPICPMS_TS	2307
56	Sample	1405293-03C	SAMPICPMS_TS	2308
57	Sample	1405293-04C	SAMPICPMS_TS	2309
58	Sample	1405293-05C	SAMPICPMS_TS	2310
59	Sample	1405293-06C	SAMPICPMS_TS	2311
60	CCV	CCV2-140605	CCV ICPMS_TW	1207

#	Level	Dilution	Skip	ISTD Conc
41		5		
42		5		
43		5		
44		5		
45		5		
46		5		
47		5		
48		5		
49		5		
50				
51				
52				
53				
54		5		
55		5		
56		5		
57		5		
58		5		
59		5		
60				

#	Sample Type	Sample Name	Comment	Vial#	File Name
61	CCB	CCB2-140605	CCB ICPMS_TW	1102	
62	LLCCV	LCVL2-140605	LCVLICPMS_TW	2112	
63	CCB	CCB2-140605	CCB ICPMS_TW	1103	
64	PB_W	MB-63954	MBLKICPMS_DW	2401	
65	PB_W	MB-63729 7-DAY	MBLK7_DAY_MET	2402	
66	PB_W	MB-63904 SPLP	MBLKSPLP_MET	2403	
67	LCS_W	LCS-63954	LCS ICPMS_DW	2404	
68	LCS_W	LCSD-63954	LCSDICPMS_DW	2405	
69	CCB	RINSE	CCB ICPMS_TW	1101	
70	AllRef	1405324-01B	SAMPICPMS_DW	2406	
71	SD	1405324-01B SD	SD ICPMS_DW	2407	
72	Sample	1405324-02B	SAMPICPMS_DW	2408	
73	Sample	1405208-03A	SAMPSPLP_MET	2409	

Sample List

74	Sample	1405244-01C	SAMP7_DAY_MET	2410
75	Sample	1405244-02C	SAMP7_DAY_MET	2411
76	Sample	1405244-03C	SAMP7_DAY_MET	2412
77	Sample	1405244-04C	SAMP7_DAY_MET	2501
78	PDS	1405324-01B PDS	PDS ICPMS_DW	2502
79	MS_S	1405324-01B MS	MS ICPMS_DW	2503
80	MS_S	1405324-01B MSD	MSD ICPMS_DW	2504

#	Level	Dilution	Skip	ISTD Conc
61				
62				
63				
64		1		
65		1		
66		1		
67		1		
68		1		
69				
70		1		
71		5		
72		1		
73		1		
74		1		
75		1		
76		1		
77		1		
78		1		
79		1		
80		1		

#	Sample Type	Sample Name	Comment	Vial#	File Name
81	Sample	1405337-01A	SAMP200.8	2505	
82	CCV	CCV3-140605	CCV ICPMS_TW	1207	
83	CCB	CCB3-140605	CCB ICPMS_TW	1102	
84	LLCCV	LCVL3-140605	LCVLICPMS_TW	2512	
85	CCB	CCB3-140605	CCB ICPMS_TW	1103	
86	PB_W	MB-63971	MBLKICPMS_DW10	3101	
87	LCS_W	LCS-63971	LCS ICPMS_DW10	3102	
88	LCS_W	LCSD-63971	LCSDICPMS_DW10	3103	
89	CCB	RINSE	CCB ICPMS_TW	1101	
90	AllRef	1405311-01B	SAMPICPMS_DW10	3104	
91	SD	1405311-01B SD	SD ICPMS_DW10	3105	
92	Sample	1405311-02B	SAMPICPMS_DW10	3106	
93	Sample	1405311-03B	SAMPICPMS_DW10	3107	
94	Sample	1405311-04B	SAMPICPMS_DW10	3108	
95	Sample	1405311-05B	SAMPICPMS_DW10	3109	
96	PDS	1405311-01B PDS	PDS ICPMS_DW10	3110	
97	MS_S	1405311-01B MS	MS ICPMS_DW10	3111	
98	MS_S	1405311-01B MSD	MSD ICPMS_DW10	3112	
99	CCV	CCV4-140605	CCV ICPMS_TW	1207	
100	CCB	CCB4-140605	CCB ICPMS_TW	1102	

Sample List

#	Level	Dilution	Skip	ISTD Conc
81		10		
82				
83				
84				
85				
86		1		
87		1		
88		1		
89				
90		1		
91		5		
92		1		
93		1		
94		1		
95		1		
96		1		
97		1		
98		1		
99				
100				

#	Sample Type	Sample Name	Comment	Vial#	File Name
101	LLCCV	LCVL4-140605	LCVLICPMS_TW	2512	
102	CCB	CCB4-140605	CCB ICPMS_TW	1103	
103	PB_W	MB-63877	MBLKICPMS_TW	3201	
104	LCS_W	LCS-63877	LCS ICPMS_TW	3202	
105	LCS_W	LCSD-63877	LCSDICPMS_TW	3203	
106	CCB	RINSE	CCB ICPMS_TW	1101	
107	AllRef	1405261-24A	SAMPICPMS_TW	3204	
108	SD	1405261-24A SD	SD ICPMS_TW	3205	
109	SAMP_W	1405300-01A	SAMPICPMS_TW	3206	
110	SAMP_W	1405300-02A	SAMPICPMS_TW	3207	
111	SAMP_W	1405300-03A	SAMPICPMS_TW	3208	
112	SAMP_W	1405300-04A	SAMPICPMS_TW	3209	
113	SAMP_W	1405300-05A	SAMPICPMS_TW	3210	
114	SAMP_W	1405300-06A	SAMPICPMS_TW	3211	
115	SAMP_W	1405300-07A	SAMPICPMS_TW	3212	
116	SAMP_W	1405300-08A	SAMPICPMS_TW	3301	
117	SAMP_W	1405300-09A	SAMPICPMS_TW	3302	
118	SAMP_W	1405300-10A	SAMPICPMS_TW	3303	
119	PDS	1405261-24A PDS	PDS ICPMS_TW	3304	
120	MS_S	1405261-24A MS	MS ICPMS_TW	3305	

#	Level	Dilution	Skip	ISTD Conc
101				
102				
103		1		
104		1		
105		1		
106				
107		1		

Sample List

108		5
109		1
110		1
111		1
112		1
113		1
114		1
115		1
116		1
117		1
118		1
119		1
120		1

#	Sample Type	Sample Name	Comment	Vial#	File Name
121	MS_S	1405261-24A MSD	MSD ICPMS_TW	3306	
122	CCV	CCV5-140605	CCV ICPMS_TW	1207	
123	CCB	CCB5-140605	CCB ICPMS_TW	1102	
124	LLCCV	LCVL5-140605	LCVLICPMS_TW	2511	
125	CCB	CCB5-140605	CCB ICPMS_TW	1103	
126	PB_W	MB-63851	MBLKICPMS_TW	3401	
127	LCS_W	LCS-63851	LCS ICPMS_TW	3402	
128	LCS_W	LCSD-63851	LCSDICPMS_TW	3403	
129	CCB	RINSE	CCB ICPMS_TW	1101	
130	AllRef	1405265-16A	SAMPICPMS_TW	3404	
131	SD	1405265-16A SD	SD ICPMS_TW	3405	
132	SAMP_W	1405311-01A	SAMPICPMS_TW	3406	
133	SAMP_W	1405311-02A	SAMPICPMS_TW	3407	
134	SAMP_W	1405311-03A	SAMPICPMS_TW	3408	
135	SAMP_W	1405311-04A	SAMPICPMS_TW	3409	
136	SAMP_W	1405311-05A	SAMPICPMS_TW	3410	
137	PDS	1405265-16A PDS	PDS ICPMS_TW	3411	
138	MS_S	1405265-16AMS	MS ICPMS_TW	3412	
139	MS_S	1405265-16AMSD	MSD ICPMS_TW	3312	
140	CCV	CCV6-140402	CCV ICPMS_TW	1207	

#	Level	Dilution	Skip	ISTD Conc
121		1		
122				
123				
124				
125				
126		1		
127		1		
128		1		
129				
130		10		
131		50		
132		1		
133		1		
134		1		
135		1		

Sample List

136		1			
137		10			
138		10			
139		10			
140					
#	**Sample Type**	**Sample Name**	**Comment**	**Vial#**	**File Name**
141	ICV	ICV2-140605	ICV ICPMS_TW	2111	
142	CCV	CCV6-140402	CCV ICPMS_TW	1207	
143	CCB	CCB6-140402	CCB ICPMS_TW	1102	
144	LLCCV	LCVL6-140402	LCVLICPMS_TW	2511	
145	CCB	CCB6-140402	CCB ICPMS_TW	1103	
146	PB_W	MB-63952	MBLKICPMS_TW	4101	
147	PB_W	MB-63728 TCLP	MBLKTCLP_MET	4102	
148	PB_W	MB-63903 TCLP	MBLKTCLP_MET	4103	
149	LCS_W	LCS-63952	LCS ICPMS_TW	4104	
150	LCS_W	LCSD-63952	LCSDICPMS_TW	4105	
151	CCB	RINSE	CCB ICPMS_TW	1101	
152	AllRef	1405381-01A	SAMPICPMS_TW	4106	
153	SD	1405381-01A SD	SD ICPMS_TW	4107	
154	SAMP_W	1405381-02A	SAMPICPMS_TW	4108	
155	SAMP_W	1405384-04A	SAMPTCLP_MET	4109	
156	SAMP_W	1405244-01B	SAMPTCLP_MET	4110	
157	SAMP_W	1405244-02B	SAMPTCLP_MET	4111	
158	SAMP_W	1405244-03B	SAMPTCLP_MET	4112	
159	SAMP_W	1405244-04B	SAMPTCLP_MET	4201	
160	SAMP_W	1405369-02A	SAMPTCLP_MET	4202	

#	Level	Dilution	Skip	ISTD Conc
141				
142				
143				
144				
145				
146		1		
147		1		
148		1		
149		1		
150		1		
151				
152		1		
153		5		
154		1		
155		1		
156		1		
157		1		
158		1		
159		1		
160		1		

#	Sample Type	Sample Name	Comment	Vial#	File Name
161	SAMP_W	1405208-03A	SAMPTCLP_MET	4203	

Sample List

162	SAMP_W	1405373-01A	SAMPTCLP_MET	4204
163	PDS	1405381-01A PDS	PDS ICPMS_TW	4205
164	MS_S	1405381-01A MS	MS ICPMS_TW	4206
165	MS_S	1405381-01A MSD	MSD ICPMS_TW	4207
166	CCV	CCV7-140402	CCV ICPMS_TW	1207
167	CCB	CCB7-140402	CCB ICPMS_TW	1102
168	LLCCV	LCVL7-140402	LCVLICPMS_TW	2512
169	CCB	CCB7-140402	CCB ICPMS_TW	1103
170	CCB	CCB7-140402	CCB ICPMS_TW	1103
171	SAMP_W	1405371-01C	SAMPICPMS_TW	4208
172	SAMP_W	1405371-02C	SAMPICPMS_TW	4209
173	SAMP_W	1405371-03C	SAMPICPMS_TW	4210
174	SAMP_W	1405379-01A	SAMPICPMS_TW	4211
175	SAMP_W	1405380-01A	SAMPICPMS_TW	4212
176	CCV	CCV8-140402	CCV ICPMS_TW	1207
177	CCB	CCB8-140402	CCB ICPMS_TW	1102
178	LLCCV	LCVL8-140402	LCVLICPMS_TW	2510
179	CCB	CCB8-140402	CCB ICPMS_TW	1103

#	Level	Dilution	Skip	ISTD Conc
161		1		
162		1		
163		1		
164		1		
165		1		
166				
167				
168				
169				
170				
171		1		
172		1		
173		1		
174		1		
175		1		
176				
177				
178				
179				

Unknown Samples:

Blank Samples:

Periodic Block

#	Block Name	Period	Unit	Reset By

Sample List

Sublist

DHL ANALYTICAL

EXTRACTION LOG - TCLP/SPLP

DHL WORK ORDER #: 1405276, 1405284 ANALYST/DATE: 05-27-2014 JAL

BATCH #: ~~63784~~, JAL 5-27-14 63783, 63785 REVIEWER/DATE:

MATRIX	EPA METHOD	REAGENTS	Fluid pH Check (meter must be calibrated)
SOIL	1311 (TCLP) CMLC	TCLP #1 8177	TCLP #1 (4.88-4.98): 4.920
OTHER Rocks	100g sample required	TCLP #2	TCLP #2 (2.83-2.93): —
BALANCE # 23,28	1312 (SPLP) —	SPLP #1 —	SPLP West (4.95-5.05): —
	100g sample required	SPLP #2 (rare) —	SPLP East (4.95-5.05): —

CALIBRATION CHECK

pH METER ID#: #2 (ORION A211)

JAL 5-27-14 Avg. Slope 93.17% (92-102%)

140418

~~PH 140818-12~~

PH: 12.547

DHL Lot # (Standards)	Standard ID	pH Reading √
PH140421	pH 2.0	1.677
PH140418-4	pH 4.0	4.006
PH140418-7	pH 7.0	7.008
PH140418-10	pH 10.0	10.055
~~PH130210~~ JAL 5-27-14	pH 12.0	~~12.592~~

Analyst: JAL

Date/Time: ~~05-27-15~~ 13:30

05-27-14

JAL 5-27-2014

	DATE:	TIME: (16-20 HR)	TUMBLER: (28-32 RPM)	TEMP: (21-25°C)
TUMBLER ON:	05-27-2014	16:30	30	21.9 °C
TUMBLER OFF:	05-28-2014	9:26	30	23.6°C
MIN/MAX TEMP:	21.6°C	23.6°C	---	(21-25°C)

REVIEWED
By Evelyn Ferrero at 4:46:56 PM, 6/3/2014

FOR pH ANALYSES / FOR EXTRACTION

SAMPLE ID *Place Note on PBR if <100g*	SAMPLE WEIGHT (g)	INITIAL pH	SECONDARY pH	EXT. FLUID #	SAMPLE WEIGHT (g)	FLUID VOL (mL)	Container Type	% Solids	Final pH
MB-63783/63785	—	—	—	#1	—	958	P / G / Z	—	4.902
1405276-51C	4.97	9.251	1.788	#1	100.02	2000mL	P / G / Z	10007.	6.639
1405284-013	4.99	9.357	1.224	#1	101.02	2020mL	(P) / G / Z	10007.	6.652
							P / G / Z		
							P / G / Z		
							P / G / Z		
							P / G / Z		
							P / G / Z		
							P / G / Z		
							P / G / Z		
							P / G / Z		

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/30/2014 8:29:00 AM**
Digestion: **Start: 5/30/2014 9:40:00 AM / Stop: 5/30/2014 2:35:00 PM**
Prep End Date: **5/30/2014 3:39:10 PM**

Prep Batch **63877** Prep Code: **3005A** Technician: **Ryan Oliver**

Prep Factor Units: **mL/mL**

Equipment List
Thermometer #77
Hot Block #2

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1405261-17A	Aqueous		50	50	1.000	1 of 1
1405261-18A	Aqueous		50	50	1.000	1 of 1
1405261-19A	Aqueous		50	50	1.000	1 of 1
1405261-20A	Aqueous		50	50	1.000	1 of 1
1405261-21A	Aqueous		50	50	1.000	1 of 1
1405261-22A	Aqueous		50	50	1.000	1 of 1
1405261-23A	Aqueous		50	50	1.000	1 of 1
1405261-24A	Aqueous		50	50	1.000	1 of 1
1405261-24A MS	Aqueous		50	50	1.000	of
1405261-24A MSD	Aqueous		50	50	1.000	of
1405261-24A PDS	Aqueous		50	50	1.000	of
1405261-24A SD	Aqueous		50	50	1.000	of
1405276-51C	Soil		5	50	10.000	1 of 1
1405284-01B	Soil		5	50	10.000	1 of 1
1405300-01A	Aqueous		50	50	1.000	1 of 1
1405300-02A	Aqueous		50	50	1.000	1 of 1
1405300-03A	Aqueous		50	50	1.000	1 of 1
1405300-04A	Aqueous		50	50	1.000	1 of 1
1405300-05A	Aqueous		50	50	1.000	1 of 1
1405300-06A	Aqueous		50	50	1.000	1 of 1
1405300-07A	Aqueous		50	50	1.000	1 of 1
1405300-08A	Aqueous		50	50	1.000	1 of 1
1405300-09A	Aqueous		50	50	1.000	1 of 1
1405300-10A	Aqueous		50	50	1.000	1 of 1
LCS-63877	Aqueous		50	50	1.000	of
LCSD-63877	Aqueous		50	50	1.000	of
MB-63783 TCLP			5	50	10.000	of

Number	Reagent Name	Amt	Units	Exp. Date
7684	Nitric Acid (Trace Metal Grade)	1	ml	08/07/2015
8095	Hydrochloric Acid (Trace Metal Grade)	1	ml	07/05/2016
8181	Digestion Vessels	69	ml	11/24/2014

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-140109-01	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/06/2015
MET-140109-02	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/10/2015
MET-SPIKE-140522-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	08/20/2014
MET-SPIKE-140522-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MS	0.2	06/22/2014
MET-SPIKE-140522-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	06/22/2014

REVIEWED
By Evelyn Ferrero at 4:45:49 PM, 6/3/2014

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/30/2014 8:29:00 AM**
Digestion: **Start: 5/30/2014 9:40:00 AM / Stop: 5/30/2014 2:35:00 PM**
Prep End Date: **5/30/2014 3:39:10 PM**

Prep Batch **63877** Prep Code: **3005A** Technician: **Ryan Oliver**

Prep Factor Units: **mL/mL**

Equipment List
Thermometer #77
Hot Block #2

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
MB-63877	Aqueous		50	50	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
7684	Nitric Acid (Trace Metal Grade)	1	ml	08/07/2015
8095	Hydrochloric Acid (Trace Metal Grade)	1	ml	07/05/2016
8181	Digestion Vessels	69	ml	11/24/2014

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-140109-01	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/06/2015
MET-140109-02	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/10/2015
MET-SPIKE-140522-1	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	08/20/2014
MET-SPIKE-140522-2	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MS	0.2	06/22/2014
MET-SPIKE-140522-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	06/22/2014

REVIEWED
By Evelyn Ferrero at 4:45:53 PM, 6/3/2014

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **5/27/2014 9:18:47 AM**
Digestion: **Start: 5/27/2014 4:30:00 PM / Stop: 5/28/2014 9:26:00 AM**
Prep End Date: **5/28/2014 11:28:05 AM**

Prep Batch **63783** Prep Code: **1311LM** Technician: **John Luu**

Prep Factor Units: **mL/g**

Equipment List
Thermometer #53
pH Meter #A211
Balance # 23
Balance # 20

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1405276-51C	Soil		100	2000	20.000	1 of 1
1405284-01B	Soil		101	2020	20.000	1 of 1
MB-63783	Waste		100	958	9.580	of

Number	Reagent Name	Amt	Units	Exp. Date
7705	TCLP 47 MM FILTERS	3	filter	07/12/2014
8163	TCLP EXTRACTION FLUID CONCEN	6	vial	11/16/2014
8177	TCLP Solution #1	4978	ml	11/23/2014

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
pH 131125	pH 7.00 Buffer Second Source for CCV.		20	10/30/2015
pH 140418-10	pH 10 Buffer Solution		20	09/01/2015
pH 140418-12	pH 12 Buffer Solution		20	05/27/2015
PH 140418-4	pH 4 Buffer Solution		20	10/01/2015
pH 140418-7	pH 7 Buffer Solution		20	12/01/2015
ph 140421	pH 2.0 Buffer Solution		20	11/01/2015

REVIEWED
By Evelyn Ferrero at 4:47:02 PM, 6/3/2014

Calibration Summary Report

Date Acquired 6/5/2014 10:06
Data Batch 140605.b

Level	Calibration File Name
1	011CALB.d
2	012CALS.d
3	013CALS.d
4	014CALS.d
5	015CALS.d
6	016CALS.d
7	017CALS.d
8	018CALS.d

Calibration Table

Ele	Corr Coef	Curve Equation
As	1.0000	y = 0.0012 * x + 2.3019E-004
Be	1.0000	y = 4.3464E-005 * x + 2.3389E-006
B	0.9996	y = 2.1360E-005 * x + 1.4303E-004
Na	1.0000	y = 5.7122E-004 * x + 0.0226
Mg	0.9999	y = 3.0636E-004 * x + 6.0704E-004
Al	1.0000	y = 1.6773E-004 * x + 5.0892E-004
K	0.9999	y = 3.8297E-004 * x + 0.0471
Ca	0.9999	y = 2.2260E-005 * x + 3.2116E-004
Ti	0.9998	y = 1.3679E-004 * x + 1.9576E-006
V	1.0000	y = 0.0042 * x + 0.0027
Cr	0.9999	y = 0.0048 * x + 0.0021
Mn	0.9999	y = 0.0034 * x + 2.6963E-004
Fe	1.0000	y = 0.0047 * x + 0.0105
Co	0.9999	y = 0.0096 * x + 1.9366E-004
Ni	0.9999	y = 0.0025 * x + 7.0153E-004
Cu	0.9998	y = 0.0068 * x + 0.0018
Zn	1.0000	y = 0.0015 * x + 7.1735E-004
Se	1.0000	y = 9.6117E-005 * x + 9.6271E-005
Sr	0.9996	y = 6.5929E-004 * x + 2.8461E-005
Mo	0.9997	y = 4.1941E-004 * x + 3.6291E-006
Ag	0.9997	y = 0.0013 * x + 5.3321E-006
Cd	1.0000	y = 2.2890E-004 * x + 3.8730E-006
Sn	0.9996	y = 5.1081E-004 * x + 9.9547E-005
Sb	0.9997	y = 8.4901E-004 * x + 3.1008E-005
Tl	1.0000	y = 0.0016 * x + 3.1635E-005
Ba	1.0000	y = 2.7850E-004 * x + 9.3292E-006
Pb	1.0000	y = 0.0021 * x + 2.2629E-004

Calibration Summary Report

Level 7 Cal

Ele	Conc	Calc	%Rec
As	500	488.80	98
Be	500	507.73	102
B	500	537.90	108
Na	10000	9968.95	100
Mg	10000	10153.31	102
Al	10000	9978.29	100
K	10000	9808.68	98
Ca	10000	9953.94	100
Ti	500	533.13	107
V	500	511.76	102
Cr	500	518.27	104
Mn	500	520.56	104
Fe	10000	9968.03	100
Co	500	516.40	103
Ni	500	513.49	103
Cu	500	529.95	106
Zn	500	491.06	98
Se	500	504.34	101
Sr	500	544.87	109
Mo	500	542.40	108
Ag	500	495.37	99
Cd	500	496.20	99
Sn	500	551.82	110
Sb	500	496.43	99
Tl	500	498.03	100
Ba	500	499.19	100
Pb	500	505.37	101

Level 8 Cal

Ele	Conc	Calc	%Rec
As	2000	2002.41	100
Be	2000	1996.64	100
B	2000	1985.25	101
Na	25000	24969.93	100
Mg	25000	24901.44	100
K	25000	25035.56	100
Ti	2000	1988.00	101
V	2000	1996.06	100
Cr	2000	1993.23	100
Mn	2000	1994.35	100
Co	2000	1992.48	100
Ni	2000	1993.68	100
Cu	2000	1989.37	101
Zn	2000	2001.14	100
Se	2000	1996.93	100
Sr	2000	1983.94	101
Mo	2000	1986.56	101
Cd	2000	2000.38	100
Sn	2000	1983.64	101
Tl	2000	1999.30	100
Ba	2000	1999.46	100
Pb	2000	1996.66	100

P/A Factor Tuning Report

Current Sample

Sample Name: CCB8-140402
Data File: 179_CCB.d
Acquired: 06/05/2014 15:39:23

Detector Parameters and P/A Factors

Discriminator: 4.5 mV
AnalogHV: 1603 V
PulseHV: 1127 V

Acquired: 06/05/2014 09:29:27

Mass[u]	Element	P/A Factor
6	Li	0.091732
9	Be	0.104415
23	Na	0.113552
24	Mg	0.119076
27	Al	0.123581
39	K	0.122624
45	Sc	0.124116
48		0.126204
51	V	0.127391
52	Cr	0.131616
55	Mn	0.133957
59	Co	0.138194
60	Ni	0.140377
63	Cu	0.142800
66	Zn	0.142947
72		0.141599
74	Ge	0.142042
75	As	0.141208
88	Sr	0.141927
89		0.140351
95		0.141596
97	Mo	0.141879
98	Mo	0.141842
99	[Mo]	0.145374
101		0.145417
105		0.148890
111	Cd	0.151261
114	Cd	0.151410
115	In	0.150778
118	Sn	0.149872
121		0.150618
123	Sb	0.149888
135	Ba	0.150790
138		0.151763
175		0.157260
193		0.160152
205	Tl	0.162395
206	[Pb]	0.161881
207	[Pb]	0.162106
208	Pb	0.162224
209	Bi	0.163319
232		0.160881
238	U	0.161104
44	Ca	Signal too low
78	Se	Signal too low
107	Ag	Signal too low
172		Signal too low

Calibration Blank Report

Date Acquired	6/5/2014 10:06	Sample Name	BLANK STD 1
Data Batch	140605.b	Comment	CAL ICPMS_TW
Data File Name	011CALB.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	3	57.28
11	B	45	163	36.79
23	Na	45	25818	0.40
24	Mg	45	693	12.13
27	Al	45	581	8.46
39	K	45	53803	1.14
44	Ca	45	367	3.28
47	Ti	45	2	173.21
51	V	45	3093	0.25
52	Cr	45	2432	3.70
55	Mn	45	308	16.29
56	Fe	45	11933	0.62
59	Co	72	164	12.39
60	Ni	72	596	9.95
63	Cu	72	1545	8.53
66	Zn	72	609	6.06
75	As	72	195	11.90
78	Se	72	82	21.51
88	Sr	115	261	10.86
95	Mo	115	33	72.10
107	Ag	115	49	34.32
111	Cd	115	36	30.14
118	Sn	115	913	5.30
121	Sb	115	284	19.05
137	Ba	115	86	36.20
205	Tl	209	596	8.16
208	Pb	209	4259	5.06

QC ISTD Table

Mass	Name	CPS	%RSD
45	Sc	1141841	0.47
72	Ge	848746	0.61
115	In	9174766	0.27
209	Bi	18816731	1.22

Calibration Standard Report

Date Acquired	6/5/2014 10:08	Sample Name	Cal01
Data Batch	140605.b	Comment	CAL ICPMS_TW
Data File Name	012CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	47	11.85
11	B	45	171	17.68
23	Na	45	37419	1.87
24	Mg	45	7241	3.10
27	Al	45	4096	0.70
39	K	45	59116	1.43
44	Ca	45	851	7.05
47	Ti	45	142	4.88
51	V	45	7202	1.70
52	Cr	45	7605	3.06
55	Mn	45	3817	6.54
56	Fe	45	108753	1.40
59	Co	72	8069	1.04
60	Ni	72	2685	2.74
63	Cu	72	6392	1.58
66	Zn	72	1772	7.54
75	As	72	1139	4.39
78	Se	72	175	7.10
88	Sr	115	6212	5.86
95	Mo	115	3849	3.84
107	Ag	115	11340	2.35
111	Cd	115	1996	4.68
118	Sn	115	5559	0.87
121	Sb	115	7376	4.21
137	Ba	115	2415	1.78
205	Tl	209	27764	0.77
208	Pb	209	40822	1.82

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1120722	0.05	1141841	98.15	70	120	
72	Ge	829550	1.19	848746	97.74	70	120	
115	In	9083235	0.64	9174766	99.00	70	120	
209	Bi	18717389	1.36	18816731	99.47	70	120	

Calibration Standard Report

Date Acquired	6/5/2014 10:10	Sample Name	Cal02
Data Batch	140605.b	Comment	CAL ICPMS_TW
Data File Name	013CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	472	4.04
11	B	45	387	9.00
23	Na	45	146033	0.70
24	Mg	45	65654	0.54
27	Al	45	35290	2.13
39	K	45	129601	1.03
44	Ca	45	5182	2.39
47	Ti	45	1536	2.92
51	V	45	45814	1.02
52	Cr	45	53388	0.69
55	Mn	45	35158	0.88
56	Fe	45	975488	0.64
59	Co	72	77784	0.62
60	Ni	72	21530	0.95
63	Cu	72	57008	1.37
66	Zn	72	12325	2.96
75	As	72	9487	1.79
78	Se	72	855	4.01
88	Sr	115	58913	0.92
95	Mo	115	36752	0.90
107	Ag	115	110425	0.89
111	Cd	115	19057	2.50
118	Sn	115	46799	0.37
121	Sb	115	69914	1.87
137	Ba	115	23347	2.43
205	Tl	209	269803	0.28
208	Pb	209	370103	0.60

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1114540	0.25	1141841	97.61	70	120	
72	Ge	820393	0.16	848746	96.66	70	120	
115	In	9070055	2.83	9174766	98.86	70	120	
209	Bi	18490093	1.33	18816731	98.26	70	120	

Calibration Standard Report

Date Acquired	6/5/2014 10:12	Sample Name	Cal03
Data Batch	140605.b	Comment	CAL ICPMS_TW
Data File Name	014CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	2360	4.90
11	B	45	1319	4.78
23	Na	45	653265	0.49
24	Mg	45	340446	0.37
27	Al	45	179636	0.33
39	K	45	457219	0.68
44	Ca	45	24948	1.49
47	Ti	45	8164	1.01
51	V	45	228794	0.34
52	Cr	45	267889	0.26
55	Mn	45	182856	0.68
56	Fe	45	5122209	2.44
59	Co	72	405026	0.55
60	Ni	72	108614	0.31
63	Cu	72	291186	1.24
66	Zn	72	62988	0.85
75	As	72	49399	0.38
78	Se	72	4136	2.83
88	Sr	115	305350	0.57
95	Mo	115	192462	0.21
107	Ag	115	576656	0.52
111	Cd	115	100329	0.51
118	Sn	115	239093	0.32
121	Sb	115	364021	0.20
137	Ba	115	122036	1.08
205	Tl	209	1416680	0.60
208	Pb	209	1909693	0.15

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1101377	0.42	1141841	96.46	70	120	
72	Ge	814992	0.32	848746	96.02	70	120	
115	In	9014579	0.58	9174766	98.25	70	120	
209	Bi	18147852	1.34	18816731	96.45	70	120	

Calibration Standard Report

Date Acquired	6/5/2014 10:14	Sample Name	Cal04
Data Batch	140605.b	Comment	CAL ICPMS_TW
Data File Name	015CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	4659	0.37
11	B	45	2694	1.64
23	Na	45	1284927	1.80
24	Mg	45	676591	0.98
27	Al	45	361964	0.51
39	K	45	862053	0.75
44	Ca	45	48481	1.57
47	Ti	45	15937	2.70
51	V	45	460257	0.69
52	Cr	45	535784	0.11
55	Mn	45	369356	1.03
56	Fe	45	10322742	1.65
59	Co	72	816506	0.16
60	Ni	72	217511	0.35
63	Cu	72	578838	1.24
66	Zn	72	125187	0.36
75	As	72	98753	0.61
78	Se	72	8082	2.09
88	Sr	115	614602	1.09
95	Mo	115	384953	0.70
107	Ag	115	1161135	0.56
111	Cd	115	200778	0.72
118	Sn	115	480053	0.78
121	Sb	115	726197	0.58
137	Ba	115	244429	1.32
205	Tl	209	2971321	1.59
208	Pb	209	3890310	1.18

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1085661	0.41	1141841	95.08	70	120	
72	Ge	805578	0.59	848746	94.91	70	120	
115	In	8866321	1.39	9174766	96.64	70	120	
209	Bi	18296864	1.12	18816731	97.24	70	120	

Calibration Standard Report

Date Acquired	6/5/2014 10:16	Sample Name	Cal05
Data Batch	140605.b	Comment	CAL ICPMS_TW
Data File Name	016CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	12224	1.76
11	B	45	6766	1.93
23	Na	45	3210892	1.75
24	Mg	45	1700431	1.97
27	Al	45	910289	0.60
39	K	45	2200528	0.66
44	Ca	45	122012	0.17
47	Ti	45	40503	1.15
51	V	45	1152909	0.58
52	Cr	45	1377327	0.86
55	Mn	45	922439	0.32
56	Fe	45	25636841	0.92
59	Co	72	2116363	1.36
60	Ni	72	540668	0.68
63	Cu	72	1473492	1.87
66	Zn	72	313973	0.53
75	As	72	249841	0.63
78	Se	72	20358	0.65
88	Sr	115	1634762	0.67
95	Mo	115	984471	0.08
107	Ag	115	2953745	1.47
111	Cd	115	505912	0.72
118	Sn	115	1214974	0.88
121	Sb	115	1904623	0.73
137	Ba	115	618762	0.25
205	Tl	209	7253615	0.81
208	Pb	209	9894625	1.59

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1072773	0.59	1141841	93.95	70	120	
72	Ge	798688	0.35	848746	94.10	70	120	
115	In	8661470	2.97	9174766	94.41	70	120	
209	Bi	18025548	2.02	18816731	95.80	70	120	

Calibration Standard Report

Date Acquired	6/5/2014 10:18	Sample Name	Cal06
Data Batch	140605.b	Comment	CAL ICPMS_TW
Data File Name	017CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	23690	0.71
11	B	45	12487	2.12
23	Na	45	6136375	1.36
24	Mg	45	3339510	0.31
27	Al	45	1796941	1.22
39	K	45	4082440	1.83
44	Ca	45	238189	0.41
47	Ti	45	78286	0.98
51	V	45	2288139	0.42
52	Cr	45	2676184	1.36
55	Mn	45	1890335	1.29
56	Fe	45	50494189	1.46
59	Co	72	4034107	1.03
60	Ni	72	1043428	0.44
63	Cu	72	2909781	2.64
66	Zn	72	606036	0.43
75	As	72	488538	0.14
78	Se	72	39383	0.23
88	Sr	115	3090734	1.14
95	Mo	115	1957150	0.81
107	Ag	115	5601234	1.15
111	Cd	115	977193	0.07
118	Sn	115	2425925	2.88
121	Sb	115	3626239	0.35
137	Ba	115	1196147	0.13
205	Tl	209	14029075	1.63
208	Pb	209	18903074	1.77

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1073425	0.59	1141841	94.01	70	120	
72	Ge	810819	0.48	848746	95.53	70	120	
115	In	8603240	0.16	9174766	93.77	70	120	
209	Bi	18049392	0.85	18816731	95.92	70	120	

Calibration Standard Report

Date Acquired	6/5/2014 10:20	Sample Name	Cal07
Data Batch	140605.b	Comment	CAL ICPMS_TW
Data File Name	018CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	93002	0.12
11	B	45	45598	1.25
23	Na	45	15309311	1.18
24	Mg	45	8175802	2.20
27	Al	45	4286	5.71
39	K	45	10325318	0.64
44	Ca	45	631049	0.46
47	Ti	45	291422	0.15
51	V	45	8901087	1.20
52	Cr	45	10268125	1.48
55	Mn	45	7229330	0.69
56	Fe	45	26680	4.89
59	Co	72	15620836	0.89
60	Ni	72	4064185	0.47
63	Cu	72	10958110	0.74
66	Zn	72	2476838	0.88
75	As	72	2007959	2.17
78	Se	72	156262	0.59
88	Sr	115	11302722	1.92
95	Mo	115	7198980	1.03
107	Ag	115	1905	11.31
111	Cd	115	3956408	0.29
118	Sn	115	8755977	1.31
121	Sb	115	1935	3.89
137	Ba	115	4811253	0.56
205	Tl	209	55669793	0.79
208	Pb	209	73817303	0.80

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	1071669	0.71	1141841	93.85	70	120	
72	Ge	813749	0.70	848746	95.88	70	120	
115	In	8640793	0.94	9174766	94.18	70	120	
209	Bi	17843750	1.48	18816731	94.83	70	120	

Interference Check Solution A (ICS-A) Report

Date Acquired	6/5/2014 10:25	Sample Name	ICSA-140605
Data Batch	140605.b	Comment	ICSAICPMS_TW
Data File Name	021ICSA.d	Dilution	1

Mass	Name	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	0.018	3	17.3	1.2	0.8	
11	B	13.575	463	3.7	30	30	
51	V	-0.033	2750	0.8	10	10	
52	Cr	0.420	4442	3.4	8	5	
55	Mn	2.219	8321	3.8	8	10	
59	Co	0.636	5045	1.3	8	10	
60	Ni	0.439	1437	2.2	8	10	
63	Cu	0.788	5708	3.2	8	10	
66	Zn	2.283	3343	2.1	10	5	
75	As	0.322	500	3.5	4	5	
78	Se	0.234	95	7.0	2	5	
88	Sr	0.528	3126	0.1	10	10	
107	Ag	0.184	2050	5.4	0.8	2	
111	Cd	1.046	2018	9.7	1.2	1	FailAq
118	Sn	0.558	3191	7.2	10	10	
121	Sb	0.695	5155	4.3	4	2.5	
137	Ba	0.343	870	8.0	8	10	
205	Tl	0.093	3001	3.8	4	1.5	
208	Pb	0.779	31326	9.9	1.2	1	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1070180	0.39	1141841	93.72	70	120	
72	Ge	797837	0.13	848746	94.00	70	120	
115	In	8301002	0.69	9174766	90.48	70	120	
209	Bi	17015374	0.91	18816731	90.43	70	120	

Interference Check Solution AB (ICS-AB) Report

Date Acquired	6/5/2014 10:27	Sample Name	ICSAB-140605
Data Batch	140605.b	Comment	ICSBICPMS_TW
Data File Name	022ICSB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
51	V	45	40.246	180900	0.33	40	100.6	80	120	
52	Cr	45	20.563	107349	0.46	20	102.8	80	120	
55	Mn	45	21.113	76221	1.15	20	105.6	80	120	
59	Co	72	41.434	317883	0.48	40	103.6	80	120	
60	Ni	72	40.931	82156	0.22	40	102.3	80	120	
63	Cu	72	20.055	109488	0.35	20	100.3	80	120	
66	Zn	72	21.056	26054	1.70	20	105.3	80	120	
75	As	72	20.095	19889	0.98	20	100.5	80	120	
78	Se	72	20.306	1630	1.50	20	101.5	80	120	
107	Ag	115	18.939	209631	0.45	20	94.7	80	120	
111	Cd	115	10.683	20625	1.89	10	106.8	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1063280	0.31	1141841	93.12	70	120	
72	Ge	795923	0.84	848746	93.78	70	120	
115	In	8420865	1.05	9174766	91.78	70	120	
209	Bi	16935674	1.38	18816731	90.00	70	120	

Initial Calibration Verification (ICV) Report

Date Acquired	6/5/2014 10:38	Sample Name	ICV-140605
Data Batch	140605.b	Comment	ICV ICPMS_TW
Data File Name	027_ICV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	97.250	4774	0.38	100	97.3	90	110	
11	B	45	104.560	2682	2.36	100	104.6	90	110	
23	Na	45	2677.833	1752374	3.89	2500	107.1	90	110	
24	Mg	45	2721.696	941887	0.62	2500	108.9	90	110	
27	Al	45	2375.930	450405	0.23	2500	95.0	90	110	
39	K	45	2607.014	1180157	0.77	2500	104.3	90	110	
44	Ca	45	2558.283	64643	1.01	2500	102.3	90	110	
47	Ti	45	98.776	15254	0.70	100	98.8	90	110	
51	V	45	96.661	456969	0.45	100	96.7	90	110	
52	Cr	45	100.928	549977	0.43	100	100.9	90	110	
55	Mn	45	97.497	372571	0.77	100	97.5	90	110	
56	Fe	45	2353.691	12547497	0.72	2500	94.1	90	110	
59	Co	72	101.363	830677	0.98	100	101.4	90	110	
60	Ni	72	103.174	220366	0.65	100	103.2	90	110	
63	Cu	72	101.104	583503	0.64	100	101.1	90	110	
66	Zn	72	96.200	125017	1.26	100	96.2	90	110	
75	As	72	92.573	97200	1.20	100	92.6	90	110	
78	Se	72	97.809	8077	0.77	100	97.8	90	110	
88	Sr	115	99.616	598262	0.38	100	99.6	90	110	
95	Mo	115	93.851	358440	0.27	100	93.9	90	110	
107	Ag	115	92.126	1102523	0.34	100	92.1	90	110	
111	Cd	115	96.115	200364	0.92	100	96.1	90	110	
118	Sn	115	100.735	469466	0.71	100	100.7	90	110	
121	Sb	115	88.977	688145	0.06	100	89.0	90	110	Fail
137	Ba	115	96.509	244848	0.89	100	96.5	90	110	
205	Tl	209	98.323	2893015	0.91	100	98.3	90	110	
208	Pb	209	99.604	3894825	0.36	100	99.6	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1128823	0.57	1141841	98.86	70	120	
72	Ge	850395	0.66	848746	100.19	70	120	
115	In	9107413	1.68	9174766	99.27	70	120	
209	Bi	18853501	1.24	18816731	100.20	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	6/5/2014 10:43	Sample Name	LCVL-140605
Data Batch	140605.b	Comment	LCVLICPMS_TW
Data File Name	029LICV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.864	47	6.55	1	86.4	70	130	
11	B	45	23.718	760	4.02	20	118.6	70	130	
23	Na	45	105.774	97145	0.74	100	105.8	70	130	
24	Mg	45	106.759	38974	2.20	100	106.8	70	130	
27	Al	45	90.898	18434	1.60	100	90.9	70	130	
39	K	45	102.784	101183	0.33	100	102.8	70	130	
44	Ca	45	100.164	2985	4.78	100	100.2	70	130	
47	Ti	45	4.637	744	2.70	5	92.7	70	130	
51	V	45	1.000	8036	3.41	1	100.0	70	130	
52	Cr	45	4.825	29624	1.04	5	96.5	70	130	
55	Mn	45	4.512	18174	1.03	5	90.2	70	130	
56	Fe	45	87.544	495492	0.13	100	87.5	70	130	
59	Co	72	4.903	41316	0.25	5	98.1	70	130	
60	Ni	72	4.816	11118	0.84	5	96.3	70	130	
63	Cu	72	4.886	30393	1.41	5	97.7	70	130	
66	Zn	72	4.433	6498	5.25	5	88.7	70	130	
75	As	72	4.635	5175	2.23	5	92.7	70	130	
78	Se	72	5.100	511	6.72	5	102.0	70	130	
88	Sr	115	4.784	30059	0.57	5	95.7	70	130	
95	Mo	115	4.583	18192	3.59	5	91.7	70	130	
107	Ag	115	1.718	21371	0.86	2	85.9	70	130	
111	Cd	115	0.939	2068	5.46	1	93.9	70	130	
118	Sn	115	4.894	24551	0.88	5	97.9	70	130	
121	Sb	115	1.663	13633	1.21	2	83.2	70	130	
137	Ba	115	4.568	12100	3.39	5	91.4	70	130	
205	Tl	209	0.942	28552	0.37	1	94.2	70	130	
208	Pb	209	1.032	44992	1.54	1	103.2	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1169993	0.33	1141841	102.47	70	120	
72	Ge	871056	1.11	848746	102.63	70	120	
115	In	9446177	1.40	9174766	102.96	70	120	
209	Bi	19022547	0.95	18816731	101.09	70	120	

Initial Calibration Blank (ICB) Report

Date Acquired	6/5/2014 10:47	Sample Name	ICB-140605
Data Batch	140605.b	Comment	ICB ICPMS_TW
Data File Name	031_ICB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	-0.007	2	107.9	0.4	0.3	
11	B	45	1.694	208	26.7	10	10	
23	Na	45	1.664	27309	0.9	50	100	
24	Mg	45	-0.774	429	6.0	50	100	
27	Al	45	-0.194	552	10.7	50	10	
39	K	45	-1.233	54066	1.1	50	100	
44	Ca	45	-4.995	243	20.2	50	100	
47	Ti	45	0.000	2	173.2	4	3	
51	V	45	0.109	3664	2.9	4	3	
52	Cr	45	-0.111	1850	4.8	2	2	
55	Mn	45	-0.018	240	34.4	2	3	
56	Fe	45	-0.159	11243	2.2	50	50	
59	Co	72	-0.002	147	12.0	2	3	
60	Ni	72	-0.094	396	2.6	2	3	
63	Cu	72	-0.084	1062	4.8	2	2	
66	Zn	72	-0.218	328	5.6	4	2	
75	As	72	0.019	215	7.4	2	2	
78	Se	72	-0.019	80	5.8	1	2	
88	Sr	115	0.009	316	4.4	4	3	
95	Mo	115	0.026	134	10.3	2	2	
107	Ag	115	0.008	142	22.2	0.4	1	
111	Cd	115	-0.008	18	47.2	0.4	0.3	
118	Sn	115	0.067	1225	6.7	4	3	
121	Sb	115	-0.014	173	26.7	2	0.8	
137	Ba	115	0.004	97	12.4	2	3	
205	Tl	209	0.012	951	6.0	2	0.5	
208	Pb	209	0.054	6297	1.9	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1159121	0.52	1141841	101.51	70	120	
72	Ge	848169	0.45	848746	99.93	70	120	
115	In	9151673	0.98	9174766	99.75	70	120	
209	Bi	18635316	1.21	18816731	99.04	70	120	

Method Blank Report

Date Acquired	6/5/14 10:56 AM	Sample Name	MB-63949
Data Batch	140605.b	Comment	MBLK6020A_S
Data File Name	032_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	-0.027	1	86.60		
11	B	45	-0.110	161	15.80		
23	Na	45	7.876	31058	0.72		
24	Mg	45	3.531	1935	5.69		
27	Al	45	3.477	1251	3.18		
39	K	45	2.117	54911	0.52		
44	Ca	45	13.666	717	11.43		
47	Ti	45	0.121	21	55.45		
51	V	45	0.180	3963	2.02		
52	Cr	45	-0.002	2427	2.00		
55	Mn	45	0.055	523	3.98		
56	Fe	45	4.944	38702	1.12		
59	Co	72	0.019	321	7.93		
60	Ni	72	-0.032	536	8.36		
63	Cu	72	0.116	2244	3.94		
66	Zn	72	0.721	1562	5.40		
75	As	72	0.055	257	3.18		
78	Se	72	0.016	84	6.05		
88	Sr	115	0.061	628	5.85		
95	Mo	115	0.055	243	15.44		
107	Ag	115	0.009	161	15.53		
111	Cd	115	0.006	48	21.31		
118	Sn	115	4.452	21710	0.38		J
121	Sb	115	-0.013	186	8.86		
137	Ba	115	0.048	209	7.87		
205	Tl	209	0.049	2033	1.50		
208	Pb	209	0.262	14431	4.01		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1145713	0.68	1141841	100.34	70	120	
72	Ge	861546	0.57	848746	101.51	70	120	
115	In	9146472	0.95	9174766	99.69	70	120	
209	Bi	18769739	0.49	18816731	99.75	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	6/5/2014 10:58	Sample Name	LCS-63949
Data Batch	140605.b	Comment	LCS 6020A_S
Data File Name	033_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	199.889	9840	0.34	200	199.9	80	120	
11	B	45	217.667	5426	0.48	200	217.7	80	120	
23	Na	45	1039.883	698191	0.41	1000	1039.9	80	120	
24	Mg	45	1043.352	362618	0.58	1000	1043.4	80	120	
27	Al	45	904.526	172363	0.43	1000	904.5	80	120	
39	K	45	1010.126	491380	0.92	1000	1010.1	80	120	
44	Ca	45	1387.480	35336	0.41	1000	1387.5	80	120	Fail
47	Ti	45	221.231	34269	1.51	200	221.2	80	120	
51	V	45	206.183	974286	0.44	200	206.2	80	120	
52	Cr	45	209.948	1144996	0.88	200	209.9	80	120	
55	Mn	45	203.547	779899	0.85	200	203.5	80	120	
56	Fe	45	927.604	4967508	1.50	1000	927.6	80	120	
59	Co	72	221.653	1837239	1.28	200	221.7	80	120	
60	Ni	72	214.457	462712	0.49	200	214.5	80	120	
63	Cu	72	210.984	1230058	0.49	200	211.0	80	120	
66	Zn	72	197.077	258423	0.75	200	197.1	80	120	
75	As	72	194.688	206573	0.23	200	194.7	80	120	
78	Se	72	198.125	16465	0.91	200	198.1	80	120	
88	Sr	115	215.071	1304579	0.57	200	215.1	80	120	
95	Mo	115	214.926	829203	0.81	200	214.9	80	120	
107	Ag	115	208.518	2520825	0.59	200	208.5	80	120	
111	Cd	115	198.047	417032	0.59	200	198.0	80	120	
118	Sn	115	220.355	1036312	0.52	200	220.4	80	120	
121	Sb	115	209.114	1633254	1.48	200	209.1	80	120	
137	Ba	115	200.441	513577	0.78	200	200.4	80	120	
205	Tl	209	200.576	5905833	2.13	200	200.6	80	120	
208	Pb	209	207.992	8135630	0.97	200	208.0	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1132311	0.14	1141841	99.17	70	120	
72	Ge	860259	0.30	848746	101.36	70	120	
115	In	9198893	0.81	9174766	100.26	70	120	
209	Bi	18869636	1.00	18816731	100.28	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	6/5/2014 10:59	Sample Name	LCSD-63949
Data Batch	140605.b	Comment	LCSD6020A_S
Data File Name	034_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	202.507	9948	1.16	200	202.5	80	120	
11	B	45	228.677	5681	2.01	200	228.7	80	120	
23	Na	45	1045.442	700252	0.99	1000	1045.4	80	120	
24	Mg	45	1054.690	365765	0.11	1000	1054.7	80	120	
27	Al	45	907.886	172632	0.40	1000	907.9	80	120	
39	K	45	1007.499	489189	1.32	1000	1007.5	80	120	
44	Ca	45	1393.632	35417	1.45	1000	1393.6	80	120	Fail
47	Ti	45	221.946	34305	1.21	200	221.9	80	120	
51	V	45	206.112	971844	0.46	200	206.1	80	120	
52	Cr	45	210.604	1146073	0.65	200	210.6	80	120	
55	Mn	45	204.564	782103	0.42	200	204.6	80	120	
56	Fe	45	942.093	5034238	1.40	1000	942.1	80	120	
59	Co	72	218.537	1805675	1.39	200	218.5	80	120	
60	Ni	72	215.088	462596	0.14	200	215.1	80	120	
63	Cu	72	212.440	1234608	0.13	200	212.4	80	120	
66	Zn	72	197.834	258592	0.78	200	197.8	80	120	
75	As	72	194.924	206163	0.23	200	194.9	80	120	
78	Se	72	198.502	16443	1.41	200	198.5	80	120	
88	Sr	115	221.362	1310279	0.17	200	221.4	80	120	
95	Mo	115	220.330	829509	0.43	200	220.3	80	120	
107	Ag	115	215.137	2538021	0.98	200	215.1	80	120	
111	Cd	115	202.583	416293	0.83	200	202.6	80	120	
118	Sn	115	226.002	1037170	0.55	200	226.0	80	120	
121	Sb	115	212.763	1621687	0.67	200	212.8	80	120	
137	Ba	115	206.445	516172	0.59	200	206.4	80	120	
205	Tl	209	207.827	6127427	1.78	200	207.8	80	120	
208	Pb	209	211.157	8268201	0.61	200	211.2	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1129930	0.74	1141841	98.96	70	120	
72	Ge	857517	0.15	848746	101.03	70	120	
115	In	8976442	0.57	9174766	97.84	70	120	
209	Bi	18889986	1.28	18816731	100.39	70	120	

Dilution Sample (Dil) Report

Date Acquired	6/5/2014 11:05	Sample Name	1405376-03A SD
Data Batch	140605.b	Comment	SD 6020A_S
Data File Name	037_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
9	Be	45	0.918	48	8.73	5.4	84.8	110	90	
11	B	45	6.758	324	6.84	45.1	74.9	110	90	
23	Na	45	185.295	145025	0.42	895.8	103.4	110	90	Good
24	Mg	45	3713.826	1285239	0.80	17944.6	103.5	110	90	Good
27	Al	45	24652.796	4668837	1.49	120492.6	102.3	110	90	Good
39	K	45	2061.345	944453	0.59	10308.1	100.0	110	90	Good
44	Ca	45	48266.125	1213439	1.95	243232.5	99.2	110	90	Good
47	Ti	45	74.831	11559	1.66	357.7	104.6	110	90	Good
51	V	45	59.445	282255	0.80	303.3	98.0	110	90	Good
52	Cr	45	28.668	157965	0.51	139.4	102.8	110	90	Good
55	Mn	45	123.623	472402	0.78	625.8	98.8	110	90	Good
56	Fe	45	16119.854	85881097	1.04	77342.6	104.2	110	90	Good
59	Co	72	7.508	59649	1.54	36.9	101.8	110	90	Good
60	Ni	72	27.084	56371	0.42	133.4	101.5	110	90	Good
63	Cu	72	18.933	106894	1.60	91.3	103.7	110	90	Good
66	Zn	72	41.282	52220	0.78	196.2	105.2	110	90	Good
75	As	72	8.162	8460	1.90	40.2	101.4	110	90	Good
78	Se	72	0.739	138	4.85	4.9	75.4	110	90	
88	Sr	115	63.824	384479	0.28	342.0	93.3	110	90	Good
95	Mo	115	1.093	4219	2.71	5.8	94.4	110	90	Good
107	Ag	115	0.075	949	8.43	0.3	108.6	110	90	Good
111	Cd	115	0.269	597	3.11	1.3	99.7	110	90	Good
118	Sn	115	1.677	8728	2.35	8.6	97.1	110	90	Good
121	Sb	115	0.096	1029	4.59	0.6	85.4	110	90	
137	Ba	115	86.933	221150	0.69	446.1	97.4	110	90	Good
205	Tl	209	0.444	13485	1.75	2.2	100.3	110	90	Good
208	Pb	209	13.496	524626	0.75	67.1	100.5	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1129014	0.30	1141841	98.88	70	120	
72	Ge	822431	0.31	848746	96.90	70	120	
115	In	9131105	0.56	9174766	99.52	70	120	
209	Bi	18611537	1.30	18816731	98.91	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	6/5/2014 11:24	Sample Name	1405376-03A PDS
Data Batch	140605.b	Comment	PDS 6020A_S
Data File Name	047_PDS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	196.688	9205	0.50	5.4	200	95.6	75	125	
11	B	45	233.605	5525	2.00	45.1	200	94.3	75	125	
23	Na	45	6165.879	3815728	0.90	895.8	5000	105.4	75	125	
24	Mg	45	23599.219	7783504	1.64	17944.6	5000	113.1	75	125	
27	Al	45	########	23059769	0.48	120492.6	5000	144.4	75	125	Fail
39	K	45	15934.090	6619537	1.06	10308.1	5000	112.5	75	125	
44	Ca	45	########	6090115	0.86	243232.5	5000	218.1	75	125	Fail
47	Ti	45	576.070	84830	0.37	357.7	200	109.2	75	125	
51	V	45	516.549	2316072	1.56	303.3	200	106.6	75	125	
52	Cr	45	358.815	1858732	0.55	139.4	200	109.7	75	125	
55	Mn	45	841.268	3063509	0.46	625.8	200	107.7	75	125	
56	Fe	45	86653.819	440125423	0.83	77342.6	5000	186.2	75	125	Fail
59	Co	72	256.087	1908488	1.84	36.9	200	109.6	75	125	
60	Ni	72	350.052	678720	1.39	133.4	200	108.3	75	125	
63	Cu	72	302.441	1584732	1.06	91.3	200	105.6	75	125	
66	Zn	72	400.851	472020	0.52	196.2	200	102.3	75	125	
75	As	72	240.408	229304	0.52	40.2	200	100.1	75	125	
78	Se	72	204.828	15302	0.78	4.9	200	100.0	75	125	
88	Sr	115	561.664	3106157	0.87	342.0	200	109.8	75	125	
95	Mo	115	208.617	734078	0.75	5.8	200	101.4	75	125	
107	Ag	115	152.675	1681994	4.75	0.3	200	76.2	75	125	
111	Cd	115	199.483	383060	0.56	1.3	200	99.1	75	125	
118	Sn	115	224.527	962919	0.24	8.6	200	107.9	75	125	
121	Sb	115	196.933	1402747	0.36	0.6	200	98.2	75	125	
137	Ba	115	693.281	1619726	0.36	446.1	200	123.6	75	125	
205	Tl	209	213.724	5794593	1.20	2.2	200	105.8	75	125	
208	Pb	209	286.143	10305269	1.53	67.1	200	109.5	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1076478	0.17	1141841	94.28	70	120	
72	Ge	773459	0.31	848746	91.13	70	120	
115	In	8391955	2.46	9174766	91.47	70	120	
209	Bi	17375068	1.28	18816731	92.34	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	6/5/2014 11:26	Sample Name	1405376-03A MS
Data Batch	140605.b	Comment	MS 6020A_S
Data File Name	048_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	194.589	8968	1.29	5.4	200	94.6	80	120	
11	B	45	233.484	5438	3.83	45.1	200	94.2	80	120	
23	Na	45	1846.023	1141690	0.60	895.8	1000	95.0	80	120	
24	Mg	45	18450.546	5992160	0.34	17944.6	1000	50.6	80	120	Fail
27	Al	45	########	22694167	1.33	120492.6	1000	715.5	80	120	Fail
39	K	45	11520.273	4726451	0.51	10308.1	1000	121.2	80	120	Fail
44	Ca	45	########	4745696	0.68	243232.5	1000	#####	80	120	Fail
47	Ti	45	700.215	101531	1.25	357.7	200	171.3	80	120	Fail
51	V	45	520.249	2296921	1.28	303.3	200	108.5	80	120	
52	Cr	45	360.995	1841334	1.09	139.4	200	110.8	80	120	
55	Mn	45	1186.081	4252937	1.89	625.8	200	280.2	80	120	Fail
56	Fe	45	81523.752	407724739	0.63	77342.6	1000	418.1	80	120	Fail
59	Co	72	259.978	1936207	1.69	36.9	200	111.6	80	120	
60	Ni	72	349.030	676292	1.34	133.4	200	107.8	80	120	
63	Cu	72	302.121	1582039	2.07	91.3	200	105.4	80	120	
66	Zn	72	387.063	455517	0.86	196.2	200	95.4	80	120	
75	As	72	245.362	233872	0.91	40.2	200	102.6	80	120	
78	Se	72	199.717	14912	1.44	4.9	200	97.4	80	120	
88	Sr	115	503.958	2747053	0.87	342.0	200	81.0	80	120	
95	Mo	115	198.262	687519	0.41	5.8	200	96.2	80	120	
107	Ag	115	207.058	2249725	0.49	0.3	200	103.4	80	120	
111	Cd	115	197.692	374152	0.21	1.3	200	98.2	80	120	
118	Sn	115	219.354	927180	0.50	8.6	200	105.4	80	120	
121	Sb	115	55.284	388280	0.32	0.6	200	27.4	80	120	Fail
137	Ba	115	723.692	1666122	1.10	446.1	200	138.8	80	120	Fail
205	Tl	209	209.019	5695131	1.49	2.2	200	103.4	80	120	
208	Pb	209	277.866	10054437	0.04	67.1	200	105.4	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1059991	0.29	1141841	92.83	70	120	
72	Ge	772965	0.33	848746	91.07	70	120	
115	In	8269252	1.84	9174766	90.13	70	120	
209	Bi	17458775	1.11	18816731	92.78	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	6/5/2014 11:28	Sample Name	1405376-03A MSD
Data Batch	140605.b	Comment	MSD 6020A_S
Data File Name	049_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	193.510	8955	0.31	5.4	200	94.0	80	120	
11	B	45	221.853	5196	2.12	45.1	200	88.4	80	120	
23	Na	45	1798.664	1117680	0.76	895.8	1000	90.3	80	120	
24	Mg	45	18077.747	5895645	0.11	17944.6	1000	13.3	80	120	Fail
27	Al	45	########	21839664	0.61	120492.6	1000	183.6	80	120	Fail
39	K	45	11233.121	4629120	1.49	10308.1	1000	92.5	80	120	
44	Ca	45	########	5680106	1.29	243232.5	1000	-352.2	80	120	Fail
47	Ti	45	682.080	99315	0.12	357.7	200	162.2	80	120	Fail
51	V	45	512.506	2272258	0.74	303.3	200	104.6	80	120	
52	Cr	45	350.041	1793031	1.96	139.4	200	105.3	80	120	
55	Mn	45	1127.950	4061415	1.72	625.8	200	251.1	80	120	Fail
56	Fe	45	76861.581	386023665	2.23	77342.6	1000	-48.1	80	120	Fail
59	Co	72	245.292	1839590	0.72	36.9	200	104.2	80	120	
60	Ni	72	330.406	644702	0.82	133.4	200	98.5	80	120	
63	Cu	72	291.632	1537783	0.91	91.3	200	100.2	80	120	
66	Zn	72	377.482	447334	0.36	196.2	200	90.6	80	120	
75	As	72	221.111	212238	0.44	40.2	200	90.4	80	120	
78	Se	72	196.134	14748	0.98	4.9	200	95.6	80	120	
88	Sr	115	555.026	3035354	2.17	342.0	200	106.5	80	120	
95	Mo	115	199.293	693393	0.23	5.8	200	96.8	80	120	
107	Ag	115	205.899	2244698	2.00	0.3	200	102.8	80	120	
111	Cd	115	197.255	374577	0.42	1.3	200	98.0	80	120	
118	Sn	115	218.495	926648	0.64	8.6	200	104.9	80	120	
121	Sb	115	56.574	398712	1.17	0.6	200	28.0	80	120	Fail
137	Ba	115	679.016	1568637	1.63	446.1	200	116.5	80	120	
205	Tl	209	204.681	5653471	1.14	2.2	200	101.2	80	120	
208	Pb	209	279.554	10254438	0.54	67.1	200	106.2	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1064415	0.21	1141841	93.22	70	120	
72	Ge	778326	0.25	848746	91.70	70	120	
115	In	8295676	0.84	9174766	90.42	70	120	
209	Bi	17697994	1.19	18816731	94.05	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	6/5/2014 11:30	Sample Name	CCV1-140605
Data Batch	140605.b	Comment	CCV ICPMS_TW
Data File Name	050_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	183.546	8763	1.60	200	91.8	90	110	
11	B	45	197.331	4785	2.24	200	98.7	90	110	
23	Na	45	4453.927	2818359	1.17	5000	89.1	90	110	Fail
24	Mg	45	4542.687	1528802	0.73	5000	90.9	90	110	
27	Al	45	4676.331	861806	0.49	5000	93.5	90	110	
39	K	45	4613.977	1991817	3.68	5000	92.3	90	110	
44	Ca	45	4455.138	109249	0.48	5000	89.1	90	110	Fail
47	Ti	45	203.971	30641	1.52	200	102.0	90	110	
51	V	45	190.225	871911	0.24	200	95.1	90	110	
52	Cr	45	194.035	1026371	0.51	200	97.0	90	110	
55	Mn	45	187.799	697814	1.09	200	93.9	90	110	
56	Fe	45	5001.244	25921768	0.62	5000	100.0	90	110	
59	Co	72	200.558	1622191	1.65	200	100.3	90	110	
60	Ni	72	196.445	413658	0.86	200	98.2	90	110	
63	Cu	72	195.996	1115182	0.92	200	98.0	90	110	
66	Zn	72	186.765	239012	0.51	200	93.4	90	110	
75	As	72	182.915	189399	0.16	200	91.5	90	110	
78	Se	72	186.213	15104	2.02	200	93.1	90	110	
88	Sr	115	195.736	1172807	0.87	200	97.9	90	110	
95	Mo	115	197.532	752739	0.43	200	98.8	90	110	
107	Ag	115	199.982	2388079	1.30	200	100.0	90	110	
111	Cd	115	184.719	384211	0.55	200	92.4	90	110	
118	Sn	115	198.075	920191	0.30	200	99.0	90	110	
121	Sb	115	195.760	1510384	1.95	200	97.9	90	110	
137	Ba	115	185.845	470333	0.50	200	92.9	90	110	
205	Tl	209	189.611	5609159	1.26	200	94.8	90	110	
208	Pb	209	193.960	7621200	0.08	200	97.0	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1098070	0.45	1141841	96.17	70	120	
72	Ge	839497	0.77	848746	98.91	70	120	
115	In	9086283	0.93	9174766	99.04	70	120	
209	Bi	18953941	0.52	18816731	100.73	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	6/5/2014 11:33	Sample Name	LCVL1-140605
Data Batch	140605.b	Comment	LCVLICPMS_TW
Data File Name	052LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.855	45	11.11	1	85.5	70	130	
11	B	45	19.043	627	9.85	20	95.2	70	130	
23	Na	45	108.785	96642	0.52	100	108.8	70	130	
24	Mg	45	106.659	37951	0.56	100	106.7	70	130	
27	Al	45	96.167	18971	1.76	100	96.2	70	130	
39	K	45	97.750	96413	1.17	100	97.7	70	130	
44	Ca	45	123.536	3503	3.10	100	123.5	70	130	
47	Ti	45	4.859	760	2.88	5	97.2	70	130	
51	V	45	1.060	8118	5.36	1	106.0	70	130	
52	Cr	45	4.886	29206	0.82	5	97.7	70	130	
55	Mn	45	4.785	18761	1.25	5	95.7	70	130	
56	Fe	45	96.835	532891	0.62	100	96.8	70	130	
59	Co	72	4.924	41253	2.24	5	98.5	70	130	
60	Ni	72	5.161	11803	1.37	5	103.2	70	130	
63	Cu	72	5.024	31026	1.53	5	100.5	70	130	
66	Zn	72	4.790	6929	1.92	5	95.8	70	130	
75	As	72	4.574	5081	0.97	5	91.5	70	130	
78	Se	72	4.805	483	6.00	5	96.1	70	130	
88	Sr	115	4.835	29780	1.48	5	96.7	70	130	
95	Mo	115	4.650	18090	1.68	5	93.0	70	130	
107	Ag	115	1.769	21577	1.59	2	88.5	70	130	
111	Cd	115	0.982	2118	2.74	1	98.2	70	130	
118	Sn	115	4.874	23972	1.32	5	97.5	70	130	
121	Sb	115	1.682	13506	3.73	2	84.1	70	130	
137	Ba	115	4.710	12230	0.75	5	94.2	70	130	
205	Tl	209	0.970	29665	0.65	1	97.0	70	130	
208	Pb	209	1.029	45282	1.52	1	102.9	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1140361	0.94	1141841	99.87	70	120	
72	Ge	866084	0.26	848746	102.04	70	120	
115	In	9258828	0.19	9174766	100.92	70	120	
209	Bi	19193085	0.24	18816731	102.00	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	6/5/2014 11:35	Sample Name	CCB1-140605
Data Batch	140605.b	Comment	CCB ICPMS_TW
Data File Name	053_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	-0.014	2	86.6	0.4	0.3	
11	B	45	1.962	213	15.1	10	10	
23	Na	45	4.476	29020	1.8	50	100	
24	Mg	45	-0.279	601	12.5	50	100	
27	Al	45	4.240	1407	3.5	50	10	
39	K	45	-2.985	53016	1.0	50	100	
44	Ca	45	7.443	561	12.8	50	100	
47	Ti	45	0.070	13	25.0	4	3	
51	V	45	0.150	3842	4.0	4	3	
52	Cr	45	-0.090	1959	4.2	2	2	
55	Mn	45	0.068	574	4.7	2	3	
56	Fe	45	3.810	32775	1.5	50	50	
59	Co	72	0.002	188	22.9	2	3	
60	Ni	72	-0.099	393	5.6	2	3	
63	Cu	72	-0.021	1452	3.3	2	2	
66	Zn	72	-0.186	377	9.9	4	2	
75	As	72	0.018	218	5.0	2	2	
78	Se	72	0.073	90	14.3	1	2	
88	Sr	115	0.027	433	14.0	4	3	
95	Mo	115	0.022	121	31.9	2	2	
107	Ag	115	0.021	308	14.6	0.4	1	
111	Cd	115	-0.002	31	34.4	0.4	0.3	
118	Sn	115	0.001	932	4.4	4	3	
121	Sb	115	-0.012	191	22.1	2	0.8	
137	Ba	115	0.025	152	9.9	2	3	
205	Tl	209	0.016	1082	4.5	2	0.5	
208	Pb	209	0.043	6045	1.4	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1153107	0.53	1141841	100.99	70	120	
72	Ge	866724	0.81	848746	102.12	70	120	
115	In	9318930	0.43	9174766	101.57	70	120	
209	Bi	19217071	2.54	18816731	102.13	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	6/5/2014 11:49	Sample Name	CCV2-140605
Data Batch	140605.b	Comment	CCV ICPMS_TW
Data File Name	060_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	181.893	9141	0.59	200	90.9	90	110	
11	B	45	195.562	4994	3.55	200	97.8	90	110	
23	Na	45	4465.012	2974243	2.98	5000	89.3	90	110	Fail
24	Mg	45	4454.546	1578276	2.53	5000	89.1	90	110	Fail
27	Al	45	4714.270	914574	0.93	5000	94.3	90	110	
39	K	45	4500.239	2046799	3.00	5000	90.0	90	110	
44	Ca	45	4369.574	112806	0.35	5000	87.4	90	110	Fail
47	Ti	45	200.425	31694	1.68	200	100.2	90	110	
51	V	45	189.311	913459	0.16	200	94.7	90	110	
52	Cr	45	191.221	1064838	0.66	200	95.6	90	110	
55	Mn	45	184.211	720566	0.77	200	92.1	90	110	
56	Fe	45	4886.582	26663270	1.25	5000	97.7	90	110	
59	Co	72	200.748	1675558	1.05	200	100.4	90	110	
60	Ni	72	196.360	426654	0.65	200	98.2	90	110	
63	Cu	72	197.171	1157620	1.17	200	98.6	90	110	
66	Zn	72	184.116	243145	0.75	200	92.1	90	110	
75	As	72	183.419	195970	0.77	200	91.7	90	110	
78	Se	72	189.531	15863	0.67	200	94.8	90	110	
88	Sr	115	199.719	1208180	0.02	200	99.9	90	110	
95	Mo	115	198.882	765237	0.27	200	99.4	90	110	
107	Ag	115	203.747	2456568	0.10	200	101.9	90	110	
111	Cd	115	183.877	386142	0.33	200	91.9	90	110	
118	Sn	115	197.555	926642	0.55	200	98.8	90	110	
121	Sb	115	193.652	1508522	0.53	200	96.8	90	110	
137	Ba	115	185.661	474417	0.60	200	92.8	90	110	
205	Tl	209	191.028	5562736	1.04	200	95.5	90	110	
208	Pb	209	193.355	7478385	0.81	200	96.7	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1155930	0.47	1141841	101.23	70	120	
72	Ge	866208	0.44	848746	102.06	70	120	
115	In	9174231	1.04	9174766	99.99	70	120	
209	Bi	18658050	0.79	18816731	99.16	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	6/5/2014 11:53	Sample Name	LCVL2-140605
Data Batch	140605.b	Comment	LCVLICPMS_TW
Data File Name	062LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.799	44	16.57	1	79.9	70	130	
11	B	45	16.377	581	4.78	20	81.9	70	130	
23	Na	45	105.040	97404	0.23	100	105.0	70	130	
24	Mg	45	104.156	38341	2.31	100	104.2	70	130	
27	Al	45	92.007	18797	3.74	100	92.0	70	130	
39	K	45	94.948	98432	0.77	100	94.9	70	130	
44	Ca	45	104.456	3120	3.53	100	104.5	70	130	
47	Ti	45	5.070	820	3.66	5	101.4	70	130	
51	V	45	0.895	7585	0.90	1	89.5	70	130	
52	Cr	45	4.871	30116	0.48	5	97.4	70	130	
55	Mn	45	4.669	18939	1.72	5	93.4	70	130	
56	Fe	45	92.262	525588	0.35	100	92.3	70	130	
59	Co	72	4.877	41620	0.90	5	97.5	70	130	
60	Ni	72	4.935	11522	2.29	5	98.7	70	130	
63	Cu	72	5.029	31634	1.00	5	100.6	70	130	
66	Zn	72	4.531	6710	1.47	5	90.6	70	130	
75	As	72	4.547	5146	1.05	5	90.9	70	130	
78	Se	72	4.738	487	5.72	5	94.8	70	130	
88	Sr	115	4.822	30409	0.32	5	96.4	70	130	
95	Mo	115	4.566	18191	2.40	5	91.3	70	130	
107	Ag	115	1.757	21940	0.91	2	87.8	70	130	
111	Cd	115	0.964	2129	2.82	1	96.4	70	130	
118	Sn	115	4.725	23827	1.50	5	94.5	70	130	
121	Sb	115	1.636	13459	3.28	2	81.8	70	130	
137	Ba	115	4.581	12180	2.98	5	91.6	70	130	
205	Tl	209	0.951	28915	0.69	1	95.1	70	130	
208	Pb	209	0.977	42931	2.12	1	97.7	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1179084	0.46	1141841	103.26	70	120	
72	Ge	882088	0.23	848746	103.93	70	120	
115	In	9481600	1.68	9174766	103.34	70	120	
209	Bi	19075767	1.09	18816731	101.38	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	6/5/2014 11:55	Sample Name	CCB2-140605
Data Batch	140605.b	Comment	CCB ICPMS_TW
Data File Name	063_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.005	3	33.3	0.4	0.3	
11	B	45	0.540	181	4.2	10	10	
23	Na	45	2.826	28388	0.7	50	100	
24	Mg	45	-1.013	348	25.3	50	100	
27	Al	45	1.752	941	13.0	50	10	
39	K	45	-4.946	52996	0.3	50	100	
44	Ca	45	-0.789	356	21.4	50	100	
47	Ti	45	0.027	7	0.0	4	3	
51	V	45	0.020	3271	3.8	4	3	
52	Cr	45	-0.101	1926	8.5	2	2	
55	Mn	45	0.027	423	9.5	2	3	
56	Fe	45	2.178	24289	2.6	50	50	
59	Co	72	-0.007	108	15.9	2	3	
60	Ni	72	-0.097	402	7.8	2	3	
63	Cu	72	-0.076	1148	3.7	2	2	
66	Zn	72	-0.177	393	1.5	4	2	
75	As	72	-0.005	197	10.7	2	2	
78	Se	72	0.125	95	6.4	1	2	
88	Sr	115	0.012	343	8.4	4	3	
95	Mo	115	0.016	96	2.0	2	2	
107	Ag	115	0.014	226	16.2	0.4	1	
111	Cd	115	-0.010	16	61.9	0.4	0.3	
118	Sn	115	-0.043	726	10.2	4	3	
121	Sb	115	-0.018	151	27.2	2	0.8	
137	Ba	115	0.006	103	11.6	2	3	
205	Tl	209	0.004	724	8.4	2	0.5	
208	Pb	209	0.003	4496	2.7	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1171873	0.67	1141841	102.63	70	120	
72	Ge	878347	0.22	848746	103.49	70	120	
115	In	9384019	0.50	9174766	102.28	70	120	
209	Bi	19337459	2.06	18816731	102.77	70	120	

Method Blank Report

Date Acquired	6/5/14 11:57 AM	Sample Name	MB-63954
Data Batch	140605.b	Comment	MBLKICPMS_DW
Data File Name	064_LRB.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	-0.014	2	173.21		
11	B	45	0.740	183	14.88		
23	Na	45	2.376	27670	0.95		
24	Mg	45	1.044	1070	6.74		
27	Al	45	1.144	809	5.04		
39	K	45	-9.798	50062	1.23		
44	Ca	45	-2.192	314	18.61		
47	Ti	45	0.049	10	88.20		
51	V	45	0.093	3572	1.75		
52	Cr	45	-0.127	1756	6.65		
55	Mn	45	-0.009	274	15.38		
56	Fe	45	0.408	14290	5.41		
59	Co	72	-0.011	74	13.68		
60	Ni	72	-0.130	328	15.57		
63	Cu	72	-0.057	1247	11.92		
66	Zn	72	0.062	706	5.52		
75	As	72	0.026	228	17.51		
78	Se	72	0.102	92	19.53		
88	Sr	115	-0.001	260	14.28		
95	Mo	115	0.005	54	39.84		
107	Ag	115	0.012	196	23.14		
111	Cd	115	-0.002	32	26.04		
118	Sn	115	-0.041	742	12.74		
121	Sb	115	-0.011	202	9.94		
137	Ba	115	0.000	89	22.60		
205	Tl	209	-0.004	496	2.80		
208	Pb	209	-0.004	4257	3.53		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1154420	0.20	1141841	101.10	70	120	
72	Ge	869379	0.87	848746	102.43	70	120	
115	In	9465781	2.76	9174766	103.17	70	120	
209	Bi	19494333	0.96	18816731	103.60	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	6/5/2014 12:03	Sample Name	LCS-63954
Data Batch	140605.b	Comment	LCS ICPMS_DW
Data File Name	067_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	194.910	9471	1.42	200	194.9	80	120	
11	B	45	205.425	5064	2.77	200	205.4	80	120	
23	Na	45	4856.089	3125327	0.75	5000	4856.1	80	120	
24	Mg	45	5047.706	1729068	1.56	5000	5047.7	80	120	
27	Al	45	4793.520	899146	0.58	5000	4793.5	80	120	
39	K	45	4921.823	2159327	1.12	5000	4921.8	80	120	
44	Ca	45	4761.600	118819	0.86	5000	4761.6	80	120	
47	Ti	45	212.748	32529	1.67	200	212.7	80	120	
51	V	45	199.960	932749	1.36	200	200.0	80	120	
52	Cr	45	202.729	1091377	0.62	200	202.7	80	120	
55	Mn	45	196.333	742531	0.98	200	196.3	80	120	
56	Fe	45	5011.569	26438438	0.11	5000	5011.6	80	120	
59	Co	72	216.016	1732557	1.83	200	216.0	80	120	
60	Ni	72	210.395	439226	1.06	200	210.4	80	120	
63	Cu	72	210.939	1189877	1.07	200	210.9	80	120	
66	Zn	72	197.721	250840	0.65	200	197.7	80	120	
75	As	72	195.078	200253	0.35	200	195.1	80	120	
78	Se	72	198.156	15931	0.98	200	198.2	80	120	
88	Sr	115	206.739	1240407	1.27	200	206.7	80	120	
95	Mo	115	208.009	793780	0.78	200	208.0	80	120	
107	Ag	115	204.487	2445489	3.19	200	204.5	80	120	
111	Cd	115	193.787	403625	0.88	200	193.8	80	120	
118	Sn	115	205.983	958202	0.76	200	206.0	80	120	
121	Sb	115	192.641	1488311	0.32	200	192.6	80	120	
137	Ba	115	192.339	487436	0.21	200	192.3	80	120	
205	Tl	209	202.951	5726852	2.17	200	203.0	80	120	
208	Pb	209	206.720	7747691	0.97	200	206.7	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1117640	0.60	1141841	97.88	70	120	
72	Ge	832341	1.14	848746	98.07	70	120	
115	In	9098301	0.62	9174766	99.17	70	120	
209	Bi	18079639	0.47	18816731	96.08	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	6/5/2014 12:05	Sample Name	LCSD-63954
Data Batch	140605.b	Comment	LCSDICPMS_DW
Data File Name	068_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	198.205	9638	1.00	200	198.2	80	120	
11	B	45	210.933	5200	4.41	200	210.9	80	120	
23	Na	45	4777.100	3077287	2.47	5000	4777.1	80	120	
24	Mg	45	4911.421	1683640	1.18	5000	4911.4	80	120	
27	Al	45	4864.091	913087	0.64	5000	4864.1	80	120	
39	K	45	4889.345	2147024	0.32	5000	4889.3	80	120	
44	Ca	45	4679.808	116879	1.10	5000	4679.8	80	120	
47	Ti	45	219.174	33537	1.38	200	219.2	80	120	
51	V	45	204.665	955339	0.66	200	204.7	80	120	
52	Cr	45	206.049	1110077	1.08	200	206.0	80	120	
55	Mn	45	199.699	755826	0.39	200	199.7	80	120	
56	Fe	45	5097.735	26913721	0.65	5000	5097.7	80	120	
59	Co	72	215.094	1731650	0.96	200	215.1	80	120	
60	Ni	72	212.762	445865	0.25	200	212.8	80	120	
63	Cu	72	213.222	1207365	0.60	200	213.2	80	120	
66	Zn	72	200.701	255604	0.60	200	200.7	80	120	
75	As	72	198.230	204282	1.07	200	198.2	80	120	
78	Se	72	203.509	16424	1.20	200	203.5	80	120	
88	Sr	115	213.148	1264813	0.97	200	213.1	80	120	
95	Mo	115	214.290	808812	1.06	200	214.3	80	120	
107	Ag	115	212.380	2512177	2.72	200	212.4	80	120	
111	Cd	115	199.503	410971	0.82	200	199.5	80	120	
118	Sn	115	211.744	974242	1.08	200	211.7	80	120	
121	Sb	115	201.279	1538238	2.49	200	201.3	80	120	
137	Ba	115	199.108	499059	0.11	200	199.1	80	120	
205	Tl	209	199.364	5760176	0.64	200	199.4	80	120	
208	Pb	209	205.933	7903168	1.14	200	205.9	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1118500	0.21	1141841	97.96	70	120	
72	Ge	835525	0.20	848746	98.44	70	120	
115	In	8998961	0.99	9174766	98.08	70	120	
209	Bi	18512794	0.90	18816731	98.38	70	120	

Dilution Sample (Dil) Report

Date Acquired	6/5/2014 12:10	Sample Name	1405324-01B SD
Data Batch	140605.b	Comment	SD ICPMS_DW
Data File Name	071_SD.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
9	Be	45	-0.034	1	173.21	0.0	-403.7	110	90	
11	B	45	19.665	656	3.82	88.6	110.9	110	90	
23	Na	45	1225.685	841497	0.58	6104.9	100.4	110	90	Good
24	Mg	45	472.474	169238	0.21	2359.2	100.1	110	90	Good
27	Al	45	15.246	3569	9.17	72.1	105.8	110	90	Good
39	K	45	1430.563	692745	0.76	7144.2	100.1	110	90	Good
44	Ca	45	1798.062	46974	1.23	8927.2	100.7	110	90	Good
47	Ti	45	0.690	112	37.14	3.8	90.5	110	90	Good
51	V	45	0.389	5036	2.36	1.8	110.3	110	90	
52	Cr	45	-0.053	2184	4.00	0.0	-722.1	110	90	
55	Mn	45	2.883	11669	1.87	14.3	100.5	110	90	Good
56	Fe	45	40.600	235205	0.32	199.9	101.6	110	90	Good
59	Co	72	0.047	576	4.72	0.3	81.6	110	90	
60	Ni	72	0.891	2618	7.24	4.6	97.0	110	90	Good
63	Cu	72	0.446	4318	6.85	2.5	89.7	110	90	
66	Zn	72	1.184	2248	3.37	6.6	89.4	110	90	
75	As	72	0.419	667	6.04	2.0	102.8	110	90	Good
78	Se	72	0.373	118	5.89	0.5	386.0	110	90	
88	Sr	115	11.118	69106	1.04	54.9	101.3	110	90	Good
95	Mo	115	0.100	429	4.49	0.4	118.6	110	90	
107	Ag	115	0.012	197	32.34	0.0	262.8	110	90	
111	Cd	115	-0.001	34	39.10	0.0	-11.7	110	90	
118	Sn	115	-0.029	797	3.62	0.0	-476.0	110	90	
121	Sb	115	0.001	296	9.59	0.1	2.9	110	90	
137	Ba	115	7.976	20948	2.99	38.7	103.1	110	90	Good
205	Tl	209	0.009	884	3.29	0.0	121.4	110	90	
208	Pb	209	0.049	6291	3.82	0.2	101.7	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1164352	0.66	1141841	101.97	70	120	
72	Ge	892833	0.44	848746	105.19	70	120	
115	In	9392090	1.11	9174766	102.37	70	120	
209	Bi	19199236	0.94	18816731	102.03	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	6/5/2014 12:24	Sample Name	1405324-01B PDS
Data Batch	140605.b	Comment	PDS ICPMS_DW
Data File Name	078_PDS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	191.261	8764	0.14	0.0	200	95.6	75	125	
11	B	45	274.397	6328	0.47	88.6	200	92.9	75	125	
23	Na	45	10698.201	6464547	2.54	6104.9	5000	91.9	75	125	
24	Mg	45	7499.005	2421953	1.48	2359.2	5000	102.8	75	125	
27	Al	45	4671.507	826319	1.04	72.1	5000	92.0	75	125	
39	K	45	11913.733	4858148	0.36	7144.2	5000	95.4	75	125	
44	Ca	45	13392.342	314537	1.42	8927.2	5000	89.3	75	125	
47	Ti	45	202.535	29201	0.66	3.8	200	99.4	75	125	
51	V	45	193.983	853347	0.96	1.8	200	96.1	75	125	
52	Cr	45	198.381	1007137	0.85	0.0	200	99.2	75	125	
55	Mn	45	205.116	731510	0.95	14.3	200	95.4	75	125	
56	Fe	45	4761.027	23684765	0.82	199.9	5000	91.2	75	125	
59	Co	72	210.806	1617830	1.59	0.3	200	105.3	75	125	
60	Ni	72	205.922	411365	0.31	4.6	200	100.7	75	125	
63	Cu	72	201.409	1087211	0.56	2.5	200	99.5	75	125	
66	Zn	72	193.921	235435	0.51	6.6	200	93.7	75	125	
75	As	72	185.621	182352	0.57	2.0	200	91.8	75	125	
78	Se	72	190.086	14628	0.71	0.5	200	94.8	75	125	
88	Sr	115	252.406	1406264	0.35	54.9	200	98.8	75	125	
95	Mo	115	188.001	666251	0.87	0.4	200	93.8	75	125	
107	Ag	115	114.427	1270824	1.79	0.0	200	57.2	75	125	Fail
111	Cd	115	191.264	369970	0.95	0.0	200	95.6	75	125	
118	Sn	115	203.232	877990	0.54	0.0	200	101.6	75	125	
121	Sb	115	177.172	1271201	0.26	0.1	200	88.5	75	125	
137	Ba	115	231.524	544861	0.31	38.7	200	96.4	75	125	
205	Tl	209	194.278	5389634	0.96	0.0	200	97.1	75	125	
208	Pb	209	201.029	7407900	1.00	0.2	200	100.4	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1053920	0.47	1141841	92.30	70	120	
72	Ge	796448	0.39	848746	93.84	70	120	
115	In	8449984	1.27	9174766	92.10	70	120	
209	Bi	17777912	1.46	18816731	94.48	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	6/5/2014 12:26	Sample Name	1405324-01B MS
Data Batch	140605.b	Comment	MS ICPMS_DW
Data File Name	079_MSS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	196.767	8935	0.78	0.0	200	98.4	80	120	
11	B	45	298.913	6818	0.73	88.6	200	105.1	80	120	
23	Na	45	10756.032	6439823	4.01	6104.9	1000	465.1	80	120	Fail
24	Mg	45	7246.545	2319349	1.37	2359.2	1000	488.7	80	120	Fail
27	Al	45	4919.597	862397	0.15	72.1	1000	484.8	80	120	Fail
39	K	45	12022.159	4858189	3.28	7144.2	1000	487.8	80	120	Fail
44	Ca	45	13426.537	312516	0.11	8927.2	1000	449.9	80	120	Fail
47	Ti	45	215.150	30744	1.49	3.8	200	105.7	80	120	
51	V	45	201.914	880172	0.13	1.8	200	100.1	80	120	
52	Cr	45	202.181	1017196	0.27	0.0	200	101.1	80	120	
55	Mn	45	210.901	745411	0.56	14.3	200	98.3	80	120	
56	Fe	45	5231.032	25791773	1.29	199.9	1000	503.1	80	120	Fail
59	Co	72	209.649	1589944	1.99	0.3	200	104.7	80	120	
60	Ni	72	209.793	414168	0.47	4.6	200	102.6	80	120	
63	Cu	72	209.165	1115748	0.34	2.5	200	103.3	80	120	
66	Zn	72	200.574	240634	0.15	6.6	200	97.0	80	120	
75	As	72	193.700	188045	0.77	2.0	200	95.8	80	120	
78	Se	72	196.896	14972	1.70	0.5	200	98.2	80	120	
88	Sr	115	274.038	1525556	0.58	54.9	200	109.6	80	120	
95	Mo	115	211.523	749000	0.98	0.4	200	105.6	80	120	
107	Ag	115	206.552	2291768	2.99	0.0	200	103.3	80	120	
111	Cd	115	194.856	376603	0.95	0.0	200	97.4	80	120	
118	Sn	115	212.769	918453	0.30	0.0	200	106.4	80	120	
121	Sb	115	197.036	1412587	0.39	0.1	200	98.5	80	120	
137	Ba	115	237.735	559052	0.83	38.7	200	99.5	80	120	
205	Tl	209	204.651	5618470	1.84	0.0	200	102.3	80	120	
208	Pb	209	206.179	7518607	0.80	0.2	200	103.0	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1044532	0.70	1141841	91.48	70	120	
72	Ge	787108	0.60	848746	92.74	70	120	
115	In	8443400	1.02	9174766	92.03	70	120	
209	Bi	17593339	1.12	18816731	93.50	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	6/5/2014 12:28	Sample Name	1405324-01B MSD
Data Batch	140605.b	Comment	MSD ICPMS_DW
Data File Name	080_MSS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	192.036	8827	0.45	0.0	200	96.0	80	120	
11	B	45	309.527	7142	4.32	88.6	200	110.4	80	120	
23	Na	45	10575.318	6410830	2.39	6104.9	1000	447.0	80	120	Fail
24	Mg	45	7223.379	2340259	1.08	2359.2	1000	486.4	80	120	Fail
27	Al	45	4867.779	863720	0.20	72.1	1000	479.6	80	120	Fail
39	K	45	11777.069	4817960	2.27	7144.2	1000	463.3	80	120	Fail
44	Ca	45	13409.613	315928	0.57	8927.2	1000	448.2	80	120	Fail
47	Ti	45	219.464	31742	3.50	3.8	200	107.8	80	120	
51	V	45	201.276	888104	0.34	1.8	200	99.8	80	120	
52	Cr	45	200.256	1019811	0.41	0.0	200	100.1	80	120	
55	Mn	45	209.367	748982	0.58	14.3	200	97.5	80	120	
56	Fe	45	5185.850	25878685	0.54	199.9	1000	498.6	80	120	Fail
59	Co	72	208.758	1610596	1.26	0.3	200	104.2	80	120	
60	Ni	72	208.468	418666	0.92	4.6	200	101.9	80	120	
63	Cu	72	206.793	1122190	0.45	2.5	200	102.2	80	120	
66	Zn	72	198.528	242302	0.71	6.6	200	96.0	80	120	
75	As	72	192.899	190505	0.58	2.0	200	95.4	80	120	
78	Se	72	196.741	15218	1.08	0.5	200	98.1	80	120	
88	Sr	115	275.573	1567497	1.06	54.9	200	110.3	80	120	
95	Mo	115	208.640	754860	0.63	0.4	200	104.1	80	120	
107	Ag	115	203.074	2302301	0.07	0.0	200	101.5	80	120	
111	Cd	115	191.566	378271	0.61	0.0	200	95.8	80	120	
118	Sn	115	209.032	921891	0.50	0.0	200	104.5	80	120	
121	Sb	115	194.439	1424245	0.46	0.1	200	97.2	80	120	
137	Ba	115	233.208	560332	0.18	38.7	200	97.3	80	120	
205	Tl	209	200.712	5580350	1.58	0.0	200	100.3	80	120	
208	Pb	209	206.734	7636848	2.09	0.2	200	103.2	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1057252	0.57	1141841	92.59	70	120	
72	Ge	800697	0.11	848746	94.34	70	120	
115	In	8626866	1.16	9174766	94.03	70	120	
209	Bi	17819449	1.49	18816731	94.70	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	6/5/2014 12:32	Sample Name	CCV3-140605
Data Batch	140605.b	Comment	CCV ICPMS_TW
Data File Name	082_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	186.933	8709	0.63	200	93.5	90	110	
11	B	45	195.206	4622	3.25	200	97.6	90	110	
23	Na	45	4430.600	2736079	2.90	5000	88.6	90	110	Fail
24	Mg	45	4508.766	1480771	1.76	5000	90.2	90	110	
27	Al	45	4731.183	850888	0.56	5000	94.6	90	110	
39	K	45	4604.372	1940199	2.37	5000	92.1	90	110	
44	Ca	45	4409.378	105528	0.76	5000	88.2	90	110	Fail
47	Ti	45	199.729	29280	1.18	200	99.9	90	110	
51	V	45	188.049	841207	0.90	200	94.0	90	110	
52	Cr	45	191.690	989542	0.40	200	95.8	90	110	
55	Mn	45	186.039	674615	0.34	200	93.0	90	110	
56	Fe	45	4925.993	24917346	0.48	5000	98.5	90	110	
59	Co	72	197.681	1535881	1.64	200	98.8	90	110	
60	Ni	72	195.792	396001	0.69	200	97.9	90	110	
63	Cu	72	195.802	1070106	0.27	200	97.9	90	110	
66	Zn	72	186.126	228803	0.44	200	93.1	90	110	
75	As	72	182.354	181373	0.97	200	91.2	90	110	
78	Se	72	188.208	14665	1.02	200	94.1	90	110	
88	Sr	115	197.823	1128878	0.50	200	98.9	90	110	
95	Mo	115	198.621	720916	0.23	200	99.3	90	110	
107	Ag	115	203.478	2314397	0.85	200	101.7	90	110	
111	Cd	115	184.039	364575	1.27	200	92.0	90	110	
118	Sn	115	197.619	874434	0.39	200	98.8	90	110	
121	Sb	115	191.529	1407485	0.71	200	95.8	90	110	
137	Ba	115	187.974	453117	0.29	200	94.0	90	110	
205	Tl	209	188.373	5359818	0.49	200	94.2	90	110	
208	Pb	209	193.133	7299658	1.07	200	96.6	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1071610	0.48	1141841	93.85	70	120	
72	Ge	806344	0.56	848746	95.00	70	120	
115	In	8654130	0.74	9174766	94.33	70	120	
209	Bi	18232636	1.55	18816731	96.90	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	6/5/2014 12:35	Sample Name	LCVL3-140605
Data Batch	140605.b	Comment	LCVLICPMS_TW
Data File Name	084LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.945	48	20.72	1	94.5	70	130	
11	B	45	19.785	630	7.12	20	98.9	70	130	
23	Na	45	108.664	94317	1.01	100	108.7	70	130	
24	Mg	45	104.227	36240	0.88	100	104.2	70	130	
27	Al	45	88.458	17092	1.68	100	88.5	70	130	
39	K	45	102.454	96182	0.77	100	102.5	70	130	
44	Ca	45	109.271	3067	4.28	100	109.3	70	130	
47	Ti	45	5.105	780	7.41	5	102.1	70	130	
51	V	45	1.056	7909	1.50	1	105.6	70	130	
52	Cr	45	4.824	28194	0.49	5	96.5	70	130	
55	Mn	45	4.576	17540	0.81	5	91.5	70	130	
56	Fe	45	89.501	481980	0.08	100	89.5	70	130	
59	Co	72	4.930	39477	0.69	5	98.6	70	130	
60	Ni	72	4.924	10790	3.13	5	98.5	70	130	
63	Cu	72	5.012	29585	0.44	5	100.2	70	130	
66	Zn	72	4.491	6246	0.41	5	89.8	70	130	
75	As	72	4.499	4779	1.42	5	90.0	70	130	
78	Se	72	4.577	444	1.60	5	91.5	70	130	
88	Sr	115	4.851	29305	0.25	5	97.0	70	130	
95	Mo	115	4.574	17454	1.21	5	91.5	70	130	
107	Ag	115	1.768	21154	1.93	2	88.4	70	130	
111	Cd	115	0.970	2053	4.92	1	97.0	70	130	
118	Sn	115	4.786	23110	1.13	5	95.7	70	130	
121	Sb	115	1.667	13131	0.80	2	83.3	70	130	
137	Ba	115	4.594	11703	1.61	5	91.9	70	130	
205	Tl	209	0.945	28301	1.81	1	94.5	70	130	
208	Pb	209	0.981	42473	3.06	1	98.1	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1113796	0.17	1141841	97.54	70	120	
72	Ge	827721	0.69	848746	97.52	70	120	
115	In	9083506	1.85	9174766	99.01	70	120	
209	Bi	18795031	0.39	18816731	99.88	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	6/5/2014 12:37	Sample Name	CCB3-140605
Data Batch	140605.b	Comment	CCB ICPMS_TW
Data File Name	085_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.060	5	65.8	0.4	0.3	
11	B	45	3.633	239	9.3	10	10	
23	Na	45	5.040	27594	2.4	50	100	
24	Mg	45	-1.251	242	16.6	50	100	
27	Al	45	-0.188	517	3.0	50	10	
39	K	45	-1.842	50239	0.6	50	100	
44	Ca	45	0.332	356	3.9	50	100	
47	Ti	45	0.031	7	86.6	4	3	
51	V	45	0.114	3444	4.1	4	3	
52	Cr	45	-0.193	1301	7.2	2	2	
55	Mn	45	-0.020	218	13.4	2	3	
56	Fe	45	-0.304	9761	1.3	50	50	
59	Co	72	-0.005	120	41.7	2	3	
60	Ni	72	-0.132	299	17.8	2	3	
63	Cu	72	-0.079	1033	8.1	2	2	
66	Zn	72	-0.205	326	16.0	4	2	
75	As	72	0.012	197	10.7	2	2	
78	Se	72	0.162	90	13.9	1	2	
88	Sr	115	0.036	461	8.2	4	3	
95	Mo	115	0.021	111	20.0	2	2	
107	Ag	115	0.019	269	16.5	0.4	1	
111	Cd	115	-0.003	28	59.2	0.4	0.3	
118	Sn	115	-0.033	729	2.6	4	3	
121	Sb	115	0.007	326	8.8	2	0.8	
137	Ba	115	0.003	89	31.9	2	3	
205	Tl	209	0.013	954	5.3	2	0.5	
208	Pb	209	0.008	4459	3.5	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1082480	1.21	1141841	94.80	70	120	
72	Ge	803535	0.19	848746	94.67	70	120	
115	In	8815142	1.24	9174766	96.08	70	120	
209	Bi	18324541	0.26	18816731	97.38	70	120	

Method Blank Report

Date Acquired	6/5/14 12:39 PM	Sample Name	MB-63971
Data Batch	140605.b	Comment	MBLKICPMS_DW10
Data File Name	086_LRB.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	-0.025	1	86.60		
11	B	45	1.627	191	16.21		
23	Na	45	5.394	27623	1.47		
24	Mg	45	0.644	864	7.96		
27	Al	45	1.143	753	5.75		
39	K	45	0.479	50855	0.83		
44	Ca	45	0.286	352	13.06		
47	Ti	45	0.039	8	65.47		
51	V	45	0.171	3678	0.60		
52	Cr	45	0.991	7413	0.26		
55	Mn	45	0.293	1355	2.85		
56	Fe	45	5.363	38441	1.59		
59	Co	72	0.005	192	7.01		
60	Ni	72	0.543	1651	0.76		
63	Cu	72	0.032	1632	5.68		
66	Zn	72	0.152	760	5.39		
75	As	72	0.038	222	8.29		
78	Se	72	0.162	90	6.03		
88	Sr	115	0.022	374	16.06		
95	Mo	115	0.030	142	13.53		
107	Ag	115	0.016	224	13.39		
111	Cd	115	-0.010	14	35.26		
118	Sn	115	-0.027	746	10.24		
121	Sb	115	0.006	311	12.42		
137	Ba	115	0.010	104	6.64		
205	Tl	209	0.007	778	7.93		
208	Pb	209	0.006	4363	3.17		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1075141	0.46	1141841	94.16	70	120	
72	Ge	800878	0.59	848746	94.36	70	120	
115	In	8681090	0.57	9174766	94.62	70	120	
209	Bi	18333273	0.79	18816731	97.43	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	6/5/2014 12:41	Sample Name	LCS-63971
Data Batch	140605.b	Comment	LCS ICPMS_DW10
Data File Name	087_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	203.735	9178	1.88	200	203.7	80	120	
11	B	45	222.500	5073	2.61	200	222.5	80	120	
23	Na	45	5212.845	3108960	1.31	5000	5212.8	80	120	
24	Mg	45	5270.598	1673802	0.69	5000	5270.6	80	120	
27	Al	45	5005.516	870479	0.32	5000	5005.5	80	120	
39	K	45	5211.777	2116965	1.55	5000	5211.8	80	120	
44	Ca	45	5059.037	117026	0.26	5000	5059.0	80	120	
47	Ti	45	219.529	31120	0.76	200	219.5	80	120	
51	V	45	206.827	894378	0.72	200	206.8	80	120	
52	Cr	45	210.176	1048953	0.39	200	210.2	80	120	
55	Mn	45	204.230	716097	0.52	200	204.2	80	120	
56	Fe	45	5184.643	25359093	1.14	5000	5184.6	80	120	
59	Co	72	222.168	1667036	1.26	200	222.2	80	120	
60	Ni	72	214.483	418954	0.59	200	214.5	80	120	
63	Cu	72	215.786	1138916	0.23	200	215.8	80	120	
66	Zn	72	205.101	243462	1.03	200	205.1	80	120	
75	As	72	199.138	191287	0.65	200	199.1	80	120	
78	Se	72	205.868	15486	1.05	200	205.9	80	120	
88	Sr	115	215.174	1202603	0.28	200	215.2	80	120	
95	Mo	115	215.642	766601	0.81	200	215.6	80	120	
107	Ag	115	214.185	2386024	0.73	200	214.2	80	120	
111	Cd	115	200.290	388602	0.57	200	200.3	80	120	
118	Sn	115	214.542	929658	0.70	200	214.5	80	120	
121	Sb	115	202.757	1459250	0.35	200	202.8	80	120	
137	Ba	115	203.369	480126	0.04	200	203.4	80	120	
205	Tl	209	206.889	5831077	0.56	200	206.9	80	120	
208	Pb	209	210.374	7875852	1.04	200	210.4	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1036214	0.29	1141841	90.75	70	120	
72	Ge	778854	1.08	848746	91.77	70	120	
115	In	8476595	1.25	9174766	92.39	70	120	
209	Bi	18059724	0.72	18816731	95.98	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	6/5/2014 12:43	Sample Name	LCSD-63971
Data Batch	140605.b	Comment	LCSDICPMS_DW10
Data File Name	088_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	202.662	9170	0.85	200	202.7	80	120	
11	B	45	214.763	4923	1.97	200	214.8	80	120	
23	Na	45	5107.453	3059830	1.77	5000	5107.5	80	120	
24	Mg	45	5196.112	1657472	0.42	5000	5196.1	80	120	
27	Al	45	4986.855	871108	0.22	5000	4986.9	80	120	
39	K	45	5182.170	2114749	2.16	5000	5182.2	80	120	
44	Ca	45	5102.012	118540	0.63	5000	5102.0	80	120	
47	Ti	45	220.680	31420	0.88	200	220.7	80	120	
51	V	45	205.040	890613	0.08	200	205.0	80	120	
52	Cr	45	208.474	1045090	0.30	200	208.5	80	120	
55	Mn	45	201.800	710754	1.04	200	201.8	80	120	
56	Fe	45	5190.968	25503731	1.27	5000	5191.0	80	120	
59	Co	72	220.530	1641647	1.46	200	220.5	80	120	
60	Ni	72	215.939	418393	0.92	200	215.9	80	120	
63	Cu	72	216.194	1131886	0.57	200	216.2	80	120	
66	Zn	72	204.916	241290	1.24	200	204.9	80	120	
75	As	72	201.143	191650	0.19	200	201.1	80	120	
78	Se	72	207.222	15461	0.38	200	207.2	80	120	
88	Sr	115	212.185	1203236	0.28	200	212.2	80	120	
95	Mo	115	212.211	765450	0.52	200	212.2	80	120	
107	Ag	115	211.599	2391684	0.62	200	211.6	80	120	
111	Cd	115	198.228	390249	0.45	200	198.2	80	120	
118	Sn	115	211.395	929439	0.94	200	211.4	80	120	
121	Sb	115	199.323	1455539	0.29	200	199.3	80	120	
137	Ba	115	199.331	477455	0.78	200	199.3	80	120	
205	Tl	209	207.448	5743482	0.63	200	207.4	80	120	
208	Pb	209	212.650	7820123	0.44	200	212.7	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1040862	0.76	1141841	91.16	70	120	
72	Ge	772538	0.52	848746	91.02	70	120	
115	In	8600589	1.35	9174766	93.74	70	120	
209	Bi	17741829	1.25	18816731	94.29	70	120	

Dilution Sample (Dil) Report

Date Acquired	6/5/2014 12:49	Sample Name	1405311-01B SD
Data Batch	140605.b	Comment	SD ICPMS_DW10
Data File Name	091_SD.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
9	Be	45	0.003	3	94.37	0.1	23.8	110	90	
11	B	45	12.548	440	10.53	58.2	107.7	110	90	Good
23	Na	45	3088.550	1912346	0.78	14797.7	104.4	110	90	Good
24	Mg	45	615.538	202455	2.12	3047.2	101.0	110	90	Good
27	Al	45	59.527	11232	2.34	283.6	105.0	110	90	Good
39	K	45	1084.681	495070	1.83	5554.4	97.6	110	90	Good
44	Ca	45	1790.949	43013	0.48	8760.6	102.2	110	90	Good
47	Ti	45	1.313	194	18.17	8.1	81.0	110	90	
51	V	45	0.422	4777	2.47	1.7	125.3	110	90	
52	Cr	45	0.021	2386	5.20	0.5	22.1	110	90	
55	Mn	45	52.353	189825	1.92	257.8	101.5	110	90	Good
56	Fe	45	933.018	4722733	2.62	4626.1	100.8	110	90	Good
59	Co	72	0.513	4166	0.38	2.7	95.4	110	90	Good
60	Ni	72	0.311	1201	7.41	1.9	81.3	110	90	
63	Cu	72	0.436	3872	1.18	2.5	86.8	110	90	
66	Zn	72	1.159	2013	4.98	6.8	84.8	110	90	
75	As	72	0.391	578	1.80	2.0	96.9	110	90	Good
78	Se	72	0.092	85	9.82	0.5	99.2	110	90	Good
88	Sr	115	40.930	236842	0.88	205.5	99.6	110	90	Good
95	Mo	115	0.050	217	18.91	0.2	122.2	110	90	
107	Ag	115	0.021	287	18.13	0.0	444.4	110	90	
111	Cd	115	0.010	53	34.79	0.0	98.2	110	90	Good
118	Sn	115	0.548	3329	2.71	3.1	89.5	110	90	
121	Sb	115	0.005	308	12.69	0.1	37.0	110	90	
137	Ba	115	15.662	38325	0.73	78.3	100.0	110	90	Good
205	Tl	209	0.014	979	5.72	0.0	196.6	110	90	
208	Pb	209	0.181	10937	1.33	0.8	108.2	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1070330	0.81	1141841	93.74	70	120	
72	Ge	811772	0.54	848746	95.64	70	120	
115	In	8767719	0.29	9174766	95.56	70	120	
209	Bi	18159012	0.33	18816731	96.50	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	6/5/2014 12:59	Sample Name	1405311-01B PDS
Data Batch	140605.b	Comment	PDS ICPMS_DW10
Data File Name	096_PDS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	198.851	8941	1.54	0.1	200	99.4	75	125	
11	B	45	250.523	5682	1.69	58.2	200	96.1	75	125	
23	Na	45	19660.273	11637240	1.28	14797.7	5000	97.3	75	125	
24	Mg	45	8203.385	2599804	1.30	3047.2	5000	103.1	75	125	
27	Al	45	4922.658	854421	0.53	283.6	5000	92.8	75	125	
39	K	45	10406.719	4170198	1.43	5554.4	5000	97.0	75	125	
44	Ca	45	13343.441	307526	1.23	8760.6	5000	91.7	75	125	
47	Ti	45	213.864	30256	2.03	8.1	200	102.9	75	125	
51	V	45	197.954	854455	0.32	1.7	200	98.1	75	125	
52	Cr	45	202.721	1009841	0.55	0.5	200	101.1	75	125	
55	Mn	45	462.568	1618348	1.11	257.8	200	102.4	75	125	
56	Fe	45	8948.858	43676624	1.20	4626.1	5000	86.5	75	125	
59	Co	72	214.701	1623943	1.66	2.7	200	106.0	75	125	
60	Ni	72	205.587	404750	0.89	1.9	200	101.8	75	125	
63	Cu	72	205.019	1090683	0.53	2.5	200	101.3	75	125	
66	Zn	72	197.804	236666	0.54	6.8	200	95.5	75	125	
75	As	72	188.367	182374	0.81	2.0	200	93.2	75	125	
78	Se	72	192.263	14581	0.47	0.5	200	95.9	75	125	
88	Sr	115	405.710	2272649	3.24	205.5	200	100.1	75	125	
95	Mo	115	188.785	672668	0.82	0.2	200	94.3	75	125	
107	Ag	115	161.516	1803389	0.19	0.0	200	80.7	75	125	
111	Cd	115	191.569	372550	0.33	0.0	200	95.8	75	125	
118	Sn	115	208.130	904000	0.44	3.1	200	102.5	75	125	
121	Sb	115	176.433	1272756	0.51	0.1	200	88.2	75	125	
137	Ba	115	269.176	636903	0.67	78.3	200	95.4	75	125	
205	Tl	209	200.123	5572945	0.39	0.0	200	100.0	75	125	
208	Pb	209	205.965	7619046	2.16	0.8	200	102.6	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1034198	0.47	1141841	90.57	70	120	
72	Ge	784948	0.77	848746	92.48	70	120	
115	In	8495503	0.76	9174766	92.60	70	120	
209	Bi	17843348	0.67	18816731	94.83	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	6/5/2014 13:00	Sample Name	1405311-01B MS
Data Batch	140605.b	Comment	MS ICPMS_DW10
Data File Name	097_MSS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	199.739	8945	0.31	0.1	200	99.8	80	120	
11	B	45	276.401	6229	0.92	58.2	200	109.1	80	120	
23	Na	45	19072.686	11245154	2.29	14797.7	1000	427.5	80	120	Fail
24	Mg	45	7899.995	2493652	0.42	3047.2	1000	485.3	80	120	Fail
27	Al	45	5153.490	890920	0.74	283.6	1000	487.0	80	120	Fail
39	K	45	10244.143	4089789	1.04	5554.4	1000	469.0	80	120	Fail
44	Ca	45	13335.660	306121	0.23	8760.6	1000	457.5	80	120	Fail
47	Ti	45	226.652	31940	1.74	8.1	200	109.3	80	120	
51	V	45	203.598	875248	0.19	1.7	200	101.0	80	120	
52	Cr	45	206.004	1022105	0.73	0.5	200	102.8	80	120	
55	Mn	45	468.009	1630859	2.28	257.8	200	105.1	80	120	
56	Fe	45	9356.298	45484217	0.32	4626.1	1000	473.0	80	120	Fail
59	Co	72	219.131	1626758	1.90	2.7	200	108.2	80	120	
60	Ni	72	212.620	410854	0.69	1.9	200	105.4	80	120	
63	Cu	72	214.259	1118723	0.64	2.5	200	105.9	80	120	
66	Zn	72	205.423	241222	0.31	6.8	200	99.3	80	120	
75	As	72	198.244	188380	0.75	2.0	200	98.1	80	120	
78	Se	72	201.336	14983	1.52	0.5	200	100.4	80	120	
88	Sr	115	419.156	2332201	0.91	205.5	200	106.8	80	120	
95	Mo	115	211.262	747748	0.68	0.2	200	105.5	80	120	
107	Ag	115	211.606	2346904	0.17	0.0	200	105.8	80	120	
111	Cd	115	197.898	382306	0.50	0.0	200	98.9	80	120	
118	Sn	115	214.698	926287	0.48	3.1	200	105.8	80	120	
121	Sb	115	199.196	1427442	0.43	0.1	200	99.6	80	120	
137	Ba	115	275.016	646409	0.03	78.3	200	98.4	80	120	
205	Tl	209	205.889	5623580	0.48	0.0	200	102.9	80	120	
208	Pb	209	211.667	7679055	0.81	0.8	200	105.4	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1030097	0.38	1141841	90.21	70	120	
72	Ge	770436	0.34	848746	90.77	70	120	
115	In	8439393	1.15	9174766	91.98	70	120	
209	Bi	17500715	0.62	18816731	93.01	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	6/5/2014 13:02	Sample Name	1405311-01B MSD
Data Batch	140605.b	Comment	MSD ICPMS_DW10
Data File Name	098_MSS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	202.509	8969	0.85	0.1	200	101.2	80	120	
11	B	45	273.083	6088	0.78	58.2	200	107.4	80	120	
23	Na	45	19341.350	11277637	0.57	14797.7	1000	454.4	80	120	Fail
24	Mg	45	8009.480	2500106	1.18	3047.2	1000	496.2	80	120	Fail
27	Al	45	5233.507	894721	0.41	283.6	1000	495.0	80	120	Fail
39	K	45	10293.399	4063605	0.65	5554.4	1000	473.9	80	120	Fail
44	Ca	45	13411.517	304446	0.12	8760.6	1000	465.1	80	120	Fail
47	Ti	45	228.116	31791	2.20	8.1	200	110.0	80	120	
51	V	45	206.553	878072	0.31	1.7	200	102.4	80	120	
52	Cr	45	208.072	1020909	0.58	0.5	200	103.8	80	120	
55	Mn	45	468.652	1615132	0.81	257.8	200	105.4	80	120	
56	Fe	45	9530.384	45818973	1.39	4626.1	1000	490.4	80	120	Fail
59	Co	72	218.456	1625448	2.21	2.7	200	107.9	80	120	
60	Ni	72	210.803	408283	0.20	1.9	200	104.4	80	120	
63	Cu	72	214.992	1125074	0.46	2.5	200	106.2	80	120	
66	Zn	72	207.563	244288	0.42	6.8	200	100.4	80	120	
75	As	72	198.860	189398	0.56	2.0	200	98.4	80	120	
78	Se	72	200.251	14938	0.85	0.5	200	99.9	80	120	
88	Sr	115	427.419	2375857	1.30	205.5	200	110.9	80	120	
95	Mo	115	211.486	747946	0.84	0.2	200	105.6	80	120	
107	Ag	115	209.621	2323419	2.63	0.0	200	104.8	80	120	
111	Cd	115	196.130	378524	0.35	0.0	200	98.0	80	120	
118	Sn	115	213.958	922234	0.53	3.1	200	105.4	80	120	
121	Sb	115	197.755	1415771	0.60	0.1	200	98.8	80	120	
137	Ba	115	273.982	643463	0.69	78.3	200	97.8	80	120	
205	Tl	209	204.345	5675719	1.24	0.0	200	102.2	80	120	
208	Pb	209	211.107	7787418	0.97	0.8	200	105.1	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1018695	0.55	1141841	89.22	70	120	
72	Ge	772225	0.81	848746	90.98	70	120	
115	In	8433654	2.17	9174766	91.92	70	120	
209	Bi	17796138	0.80	18816731	94.58	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	6/5/2014 13:04	Sample Name	CCV4-140605
Data Batch	140605.b	Comment	CCV ICPMS_TW
Data File Name	099_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	182.014	8153	1.50	200	91.0	90	110	
11	B	45	198.248	4511	2.77	200	99.1	90	110	
23	Na	45	4484.564	2662816	2.94	5000	89.7	90	110	Fail
24	Mg	45	4545.430	1435380	0.34	5000	90.9	90	110	
27	Al	45	4764.019	823807	0.19	5000	95.3	90	110	
39	K	45	4546.788	1842638	0.64	5000	90.9	90	110	
44	Ca	45	4427.977	101891	1.02	5000	88.6	90	110	Fail
47	Ti	45	201.771	28440	1.04	200	100.9	90	110	
51	V	45	190.220	818085	0.92	200	95.1	90	110	
52	Cr	45	191.103	948528	0.70	200	95.6	90	110	
55	Mn	45	187.095	652322	0.41	200	93.5	90	110	
56	Fe	45	4911.908	23889203	1.07	5000	98.2	90	110	
59	Co	72	198.071	1482547	2.25	200	99.0	90	110	
60	Ni	72	196.459	382810	0.72	200	98.2	90	110	
63	Cu	72	196.364	1033900	0.88	200	98.2	90	110	
66	Zn	72	185.985	220263	1.17	200	93.0	90	110	
75	As	72	183.392	175723	0.08	200	91.7	90	110	
78	Se	72	189.207	14202	1.80	200	94.6	90	110	
88	Sr	115	196.388	1096176	1.12	200	98.2	90	110	
95	Mo	115	197.004	699379	0.75	200	98.5	90	110	
107	Ag	115	200.825	2233957	0.58	200	100.4	90	110	
111	Cd	115	184.520	357533	0.47	200	92.3	90	110	
118	Sn	115	198.153	857554	0.56	200	99.1	90	110	
121	Sb	115	190.750	1370970	0.41	200	95.4	90	110	
137	Ba	115	186.099	438763	0.53	200	93.0	90	110	
205	Tl	209	192.409	5311695	1.93	200	96.2	90	110	
208	Pb	209	192.779	7068299	0.53	200	96.4	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1030332	0.40	1141841	90.23	70	120	
72	Ge	776820	0.22	848746	91.53	70	120	
115	In	8464361	0.89	9174766	92.26	70	120	
209	Bi	17686964	0.98	18816731	94.00	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	6/5/2014 13:08	Sample Name	LCVL4-140605
Data Batch	140605.b	Comment	LCVLICPMS_TW
Data File Name	101LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.773	38	1.51	1	77.3	70	130	
11	B	45	21.205	636	4.76	20	106.0	70	130	
23	Na	45	111.303	91914	0.90	100	111.3	70	130	
24	Mg	45	104.932	34929	0.63	100	104.9	70	130	
27	Al	45	90.372	16707	2.14	100	90.4	70	130	
39	K	45	106.318	93668	1.07	100	106.3	70	130	
44	Ca	45	109.810	2949	0.91	100	109.8	70	130	
47	Ti	45	5.188	759	10.43	5	103.8	70	130	
51	V	45	1.087	7711	2.22	1	108.7	70	130	
52	Cr	45	4.805	26899	1.41	5	96.1	70	130	
55	Mn	45	4.629	16986	0.82	5	92.6	70	130	
56	Fe	45	89.714	462540	0.63	100	89.7	70	130	
59	Co	72	4.918	37960	0.48	5	98.4	70	130	
60	Ni	72	5.111	10771	2.62	5	102.2	70	130	
63	Cu	72	4.859	27694	1.74	5	97.2	70	130	
66	Zn	72	4.622	6180	4.47	5	92.4	70	130	
75	As	72	4.508	4615	2.72	5	90.2	70	130	
78	Se	72	5.121	470	4.61	5	102.4	70	130	
88	Sr	115	4.763	27504	1.17	5	95.3	70	130	
95	Mo	115	4.536	16547	1.11	5	90.7	70	130	
107	Ag	115	1.774	20284	1.07	2	88.7	70	130	
111	Cd	115	0.895	1812	5.28	1	89.5	70	130	
118	Sn	115	4.784	22074	1.99	5	95.7	70	130	
121	Sb	115	1.693	12748	2.58	2	84.7	70	130	
137	Ba	115	4.658	11342	1.99	5	93.2	70	130	
205	Tl	209	0.981	27981	0.87	1	98.1	70	130	
208	Pb	209	1.007	41449	0.82	1	100.7	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1066408	0.33	1141841	93.39	70	120	
72	Ge	797824	0.79	848746	94.00	70	120	
115	In	8681476	1.70	9174766	94.62	70	120	
209	Bi	17915797	0.31	18816731	95.21	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	6/5/2014 13:10	Sample Name	CCB4-140605
Data Batch	140605.b	Comment	CCB ICPMS_TW
Data File Name	102_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.003	3	78.1	0.4	0.3	
11	B	45	1.578	191	39.9	10	10	
23	Na	45	5.854	28066	0.6	50	100	
24	Mg	45	-1.260	239	10.5	50	100	
27	Al	45	-0.186	517	5.5	50	10	
39	K	45	1.176	51440	1.7	50	100	
44	Ca	45	-3.164	271	17.1	50	100	
47	Ti	45	0.023	6	124.9	4	3	
51	V	45	0.135	3535	4.5	4	3	
52	Cr	45	-0.205	1240	1.0	2	2	
55	Mn	45	-0.001	288	1.8	2	3	
56	Fe	45	-0.377	9377	4.4	50	50	
59	Co	72	-0.005	118	16.1	2	3	
60	Ni	72	-0.131	301	11.1	2	3	
63	Cu	72	-0.098	932	6.3	2	2	
66	Zn	72	-0.240	284	24.3	4	2	
75	As	72	0.022	208	10.8	2	2	
78	Se	72	0.194	93	8.6	1	2	
88	Sr	115	0.019	366	4.5	4	3	
95	Mo	115	0.026	130	5.1	2	2	
107	Ag	115	0.023	316	8.0	0.4	1	
111	Cd	115	-0.008	18	47.2	0.4	0.3	
118	Sn	115	-0.027	760	3.7	4	3	
121	Sb	115	0.027	476	11.6	2	0.8	
137	Ba	115	-0.002	78	17.8	2	3	
205	Tl	209	0.018	1093	1.1	2	0.5	
208	Pb	209	0.011	4538	6.7	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1081343	0.39	1141841	94.70	70	120	
72	Ge	808084	0.36	848746	95.21	70	120	
115	In	8854706	1.69	9174766	96.51	70	120	
209	Bi	18181833	0.73	18816731	96.63	70	120	

Method Blank Report

Date Acquired	6/5/14 1:12 PM	Sample Name	MB-63877
Data Batch	140605.b	Comment	MBLKICPMS_TW
Data File Name	103_LRB.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	-0.032	1	173.21		
11	B	45	1.900	199	18.54		
23	Na	45	13.160	32619	0.67		
24	Mg	45	1.556	1173	10.09		
27	Al	45	1.855	889	36.86		
39	K	45	4.581	52914	0.66		
44	Ca	45	2.819	416	6.68		
47	Ti	45	0.008	3	100.05		
51	V	45	0.181	3749	1.29		
52	Cr	45	-0.176	1389	2.64		
55	Mn	45	0.059	508	7.94		
56	Fe	45	0.379	13252	3.12		
59	Co	72	-0.004	126	27.12		
60	Ni	72	-0.169	227	6.74		
63	Cu	72	-0.086	1011	11.89		
66	Zn	72	0.247	894	17.39		
75	As	72	0.024	212	10.59		
78	Se	72	0.017	80	3.53		
88	Sr	115	0.026	403	16.96		
95	Mo	115	0.027	132	15.40		
107	Ag	115	0.023	314	11.73		
111	Cd	115	-0.013	8	89.21		
118	Sn	115	-0.052	642	5.99		
121	Sb	115	0.028	479	14.61		
137	Ba	115	0.015	118	31.31		
205	Tl	209	0.012	921	9.30		
208	Pb	209	0.032	5406	3.23		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1082671	0.61	1141841	94.82	70	120	
72	Ge	817786	0.80	848746	96.35	70	120	
115	In	8805162	1.25	9174766	95.97	70	120	
209	Bi	18436328	0.64	18816731	97.98	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	6/5/2014 13:14	Sample Name	LCS-63877
Data Batch	140605.b	Comment	LCS ICPMS_TW
Data File Name	104_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	192.854	8876	1.01	200	192.9	80	120	
11	B	45	201.452	4707	2.05	200	201.5	80	120	
23	Na	45	4910.190	2993562	3.36	5000	4910.2	80	120	
24	Mg	45	4993.531	1620260	1.27	5000	4993.5	80	120	
27	Al	45	4773.560	848169	0.73	5000	4773.6	80	120	
39	K	45	4987.274	2071888	1.18	5000	4987.3	80	120	
44	Ca	45	4798.455	113430	1.20	5000	4798.5	80	120	
47	Ti	45	203.399	29459	0.51	200	203.4	80	120	
51	V	45	194.162	858028	0.77	200	194.2	80	120	
52	Cr	45	197.187	1005640	0.48	200	197.2	80	120	
55	Mn	45	192.327	689018	0.10	200	192.3	80	120	
56	Fe	45	4970.710	24839621	0.79	5000	4970.7	80	120	
59	Co	72	209.698	1608752	1.74	200	209.7	80	120	
60	Ni	72	202.765	404950	0.69	200	202.8	80	120	
63	Cu	72	202.820	1094490	0.17	200	202.8	80	120	
66	Zn	72	190.737	231513	0.54	200	190.7	80	120	
75	As	72	185.730	182404	0.50	200	185.7	80	120	
78	Se	72	193.340	14872	1.39	200	193.3	80	120	
88	Sr	115	200.921	1151420	0.38	200	200.9	80	120	
95	Mo	115	201.815	735599	0.39	200	201.8	80	120	
107	Ag	115	195.789	2236278	0.52	200	195.8	80	120	
111	Cd	115	187.918	373844	0.35	200	187.9	80	120	
118	Sn	115	204.029	906577	0.33	200	204.0	80	120	
121	Sb	115	186.328	1375012	0.37	200	186.3	80	120	
137	Ba	115	188.679	456735	0.31	200	188.7	80	120	
205	Tl	209	193.103	5549246	1.63	200	193.1	80	120	
208	Pb	209	198.521	7577635	1.15	200	198.5	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1058731	0.69	1141841	92.72	70	120	
72	Ge	796217	0.57	848746	93.81	70	120	
115	In	8690401	0.42	9174766	94.72	70	120	
209	Bi	18413834	0.68	18816731	97.86	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	6/5/2014 13:16	Sample Name	LCSD-63877
Data Batch	140605.b	Comment	LCSDICPMS_TW
Data File Name	105_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	189.421	8666	2.16	200	189.4	80	120	
11	B	45	204.017	4736	4.17	200	204.0	80	120	
23	Na	45	4979.785	3016915	0.71	5000	4979.8	80	120	
24	Mg	45	4979.777	1605876	1.52	5000	4979.8	80	120	
27	Al	45	4823.768	851858	0.84	5000	4823.8	80	120	
39	K	45	4980.808	2056732	1.19	5000	4980.8	80	120	
44	Ca	45	4858.302	114132	1.08	5000	4858.3	80	120	
47	Ti	45	206.059	29661	2.05	200	206.1	80	120	
51	V	45	195.540	858782	0.77	200	195.5	80	120	
52	Cr	45	197.838	1002745	1.47	200	197.8	80	120	
55	Mn	45	192.419	685127	0.72	200	192.4	80	120	
56	Fe	45	4967.567	24672847	0.72	5000	4967.6	80	120	
59	Co	72	210.379	1603084	1.11	200	210.4	80	120	
60	Ni	72	202.587	401853	0.72	200	202.6	80	120	
63	Cu	72	203.771	1092172	0.26	200	203.8	80	120	
66	Zn	72	192.451	232005	0.66	200	192.5	80	120	
75	As	72	186.823	182233	0.65	200	186.8	80	120	
78	Se	72	193.038	14749	2.37	200	193.0	80	120	
88	Sr	115	202.116	1148331	0.46	200	202.1	80	120	
95	Mo	115	202.761	732757	0.28	200	202.8	80	120	
107	Ag	115	198.050	2242681	1.27	200	198.1	80	120	
111	Cd	115	189.188	373186	0.57	200	189.2	80	120	
118	Sn	115	205.496	905315	0.16	200	205.5	80	120	
121	Sb	115	187.887	1374780	1.23	200	187.9	80	120	
137	Ba	115	189.916	455810	0.05	200	189.9	80	120	
205	Tl	209	194.972	5455133	0.81	200	195.0	80	120	
208	Pb	209	200.835	7463869	1.03	200	200.8	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1052235	0.29	1141841	92.15	70	120	
72	Ge	790816	0.12	848746	93.17	70	120	
115	In	8618127	1.82	9174766	93.93	70	120	
209	Bi	17927294	0.34	18816731	95.27	70	120	

Sample Report

Date Acquired	6/5/14 1:20 PM	Sample Name	1405261-24A
Data Batch	140605.b	Comment	SAMPICPMS_TW
Data File Name	107_ARF.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.022	3	17.32	2000	
11	B	45	557.209	12233	1.64	2000	>RL
23	Na	45	20063.090	11662547	0.54	25000	>RL
24	Mg	45	9085.181	2827477	1.24	25000	>RL
27	Al	45	11.786	2525	0.33	10000	
39	K	45	13445.419	5277504	0.56	25000	>RL
44	Ca	45	152493.145	3447940	2.29	10000	OUTCAL
47	Ti	45	0.202	30	19.24	2000	
51	V	45	13.426	59478	0.95	2000	>RL
52	Cr	45	-0.028	2026	7.85	2000	
55	Mn	45	1.359	4944	0.94	2000	
56	Fe	45	29.179	150439	0.22	10000	
59	Co	72	0.042	463	6.39	2000	
60	Ni	72	0.157	853	5.78	2000	
63	Cu	72	0.126	2086	3.23	2000	
66	Zn	72	21.287	25792	0.87	2000	>RL
75	As	72	89.504	86146	0.53	2000	>RL
78	Se	72	14.854	1188	1.89	2000	>RL
88	Sr	115	446.871	2454267	1.73	2000	>RL
95	Mo	115	21.944	76693	0.93	2000	>RL
107	Ag	115	0.038	459	5.35	500	
111	Cd	115	0.007	46	11.18	2000	
118	Sn	115	0.124	1355	8.84	2000	
121	Sb	115	244.179	1727310	1.24	500	>RL
137	Ba	115	67.255	156114	0.90	2000	>RL
205	Tl	209	0.057	2072	5.79	2000	
208	Pb	209	0.094	7290	0.82	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1015642	0.13	1141841	88.95	70	120	
72	Ge	779471	0.17	848746	91.84	70	120	
115	In	8330884	1.07	9174766	90.80	70	120	
209	Bi	17282694	0.48	18816731	91.85	70	120	

Dilution Sample (Dil) Report

Date Acquired	6/5/2014 13:22	Sample Name	1405261-24A SD
Data Batch	140605.b	Comment	SD ICPMS_TW
Data File Name	108_SD.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
9	Be	45	0.011	3	100.00	0.0	260.2	110	90	
11	B	45	115.255	2767	1.94	557.2	103.4	110	90	Good
23	Na	45	4113.190	2519468	2.93	20063.1	102.5	110	90	Good
24	Mg	45	1811.639	590172	0.45	9085.2	99.7	110	90	Good
27	Al	45	2.348	959	6.78	11.8	99.6	110	90	Good
39	K	45	2576.519	1098158	0.47	13445.4	95.8	110	90	Good
44	Ca	45	29582.361	699823	0.75	152493.1	97.0	110	90	Good
47	Ti	45	0.024	6	34.70	0.2	59.3	110	90	
51	V	45	2.636	14523	1.40	13.4	98.2	110	90	Good
52	Cr	45	-0.101	1748	6.01	0.0	1788.2	110	90	
55	Mn	45	0.267	1246	6.57	1.4	98.2	110	90	Good
56	Fe	45	5.659	39461	1.03	29.2	97.0	110	90	Good
59	Co	72	0.006	199	3.49	0.0	67.1	110	90	
60	Ni	72	-0.041	482	4.39	0.2	-129.1	110	90	
63	Cu	72	-0.067	1100	5.39	0.1	-263.8	110	90	
66	Zn	72	4.141	5638	0.80	21.3	97.3	110	90	Good
75	As	72	17.841	17853	0.23	89.5	99.7	110	90	Good
78	Se	72	3.348	336	5.35	14.9	112.7	110	90	
88	Sr	115	84.953	486447	0.54	446.9	95.1	110	90	Good
95	Mo	115	4.273	15589	1.73	21.9	97.4	110	90	Good
107	Ag	115	0.024	321	3.34	0.0	317.9	110	90	
111	Cd	115	-0.003	27	54.47	0.0	-249.9	110	90	
118	Sn	115	-0.019	779	10.27	0.1	-78.0	110	90	
121	Sb	115	46.619	343849	0.79	244.2	95.5	110	90	Good
137	Ba	115	13.383	32435	0.51	67.3	99.5	110	90	Good
205	Tl	209	0.021	1150	1.76	0.1	183.5	110	90	
208	Pb	209	0.018	4718	1.90	0.1	93.2	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1062215	0.43	1141841	93.03	70	120	
72	Ge	803680	0.43	848746	94.69	70	120	
115	In	8681190	0.96	9174766	94.62	70	120	
209	Bi	17962757	1.60	18816731	95.46	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	6/5/2014 13:43	Sample Name	1405261-24A PDS
Data Batch	140605.b	Comment	PDS ICPMS_TW
Data File Name	119_PDS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	187.926	8350	1.10	0.0	200	94.0	75	125	
11	B	45	684.938	15097	1.40	557.2	200	63.9	75	125	Fail
23	Na	45	24278.320	14195649	0.98	20063.1	5000	84.3	75	125	
24	Mg	45	13461.081	4214995	0.65	9085.2	5000	87.5	75	125	
27	Al	45	4649.946	797561	1.19	11.8	5000	92.8	75	125	
39	K	45	17633.068	6949533	2.55	13445.4	5000	83.8	75	125	
44	Ca	45	########	3400492	1.41	152493.1	5000	-60.6	75	125	Fail
47	Ti	45	203.603	28466	2.90	0.2	200	101.7	75	125	
51	V	45	210.293	896793	0.95	13.4	200	98.4	75	125	
52	Cr	45	199.550	982320	1.04	0.0	200	99.8	75	125	
55	Mn	45	196.095	678126	1.28	1.4	200	97.4	75	125	
56	Fe	45	4643.551	22400761	1.13	29.2	5000	92.3	75	125	
59	Co	72	201.785	1508866	1.35	0.0	200	100.9	75	125	
60	Ni	72	197.302	384084	0.91	0.2	200	98.6	75	125	
63	Cu	72	193.026	1015342	0.55	0.1	200	96.4	75	125	
66	Zn	72	205.062	242559	1.12	21.3	200	91.9	75	125	
75	As	72	270.884	259215	0.54	89.5	200	90.7	75	125	
78	Se	72	205.688	15417	0.88	14.9	200	95.4	75	125	
88	Sr	115	639.574	3485878	1.28	446.9	200	96.4	75	125	
95	Mo	115	212.629	737215	0.60	21.9	200	95.3	75	125	
107	Ag	115	118.607	1288630	1.05	0.0	200	59.3	75	125	Fail
111	Cd	115	189.691	358964	1.41	0.0	200	94.8	75	125	
118	Sn	115	204.455	864158	1.07	0.1	200	102.2	75	125	
121	Sb	115	412.908	2898043	1.65	244.2	200	84.4	75	125	
137	Ba	115	258.165	594432	0.44	67.3	200	95.5	75	125	
205	Tl	209	199.620	5201504	1.12	0.1	200	99.8	75	125	
208	Pb	209	202.134	6995978	0.81	0.1	200	101.0	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1021934	0.42	1141841	89.50	70	120	
72	Ge	776057	0.47	848746	91.44	70	120	
115	In	8266562	0.43	9174766	90.10	70	120	
209	Bi	16696357	0.58	18816731	88.73	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	6/5/2014 13:45	Sample Name	1405261-24A MS
Data Batch	140605.b	Comment	MS ICPMS_TW
Data File Name	120_MSS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	181.946	7927	0.63	0.0	200	91.0	80	120	
11	B	45	735.702	15890	3.16	557.2	200	89.2	80	120	
23	Na	45	24040.029	13782329	0.71	20063.1	1000	397.7	80	120	Fail
24	Mg	45	13378.729	4107580	0.15	9085.2	1000	429.4	80	120	Fail
27	Al	45	4800.211	807260	0.07	11.8	1000	478.8	80	120	Fail
39	K	45	17688.365	6834921	1.32	13445.4	1000	424.3	80	120	Fail
44	Ca	45	########	3436673	1.33	152493.1	1000	156.5	80	120	Fail
47	Ti	45	207.769	28480	0.63	0.2	200	103.8	80	120	
51	V	45	209.854	877479	0.17	13.4	200	98.2	80	120	
52	Cr	45	194.851	940546	0.79	0.0	200	97.4	80	120	
55	Mn	45	191.235	648429	0.34	1.4	200	94.9	80	120	
56	Fe	45	4962.622	23472540	1.07	29.2	1000	493.3	80	120	Fail
59	Co	72	199.667	1460739	2.41	0.0	200	99.8	80	120	
60	Ni	72	191.975	365623	0.67	0.2	200	95.9	80	120	
63	Cu	72	190.366	979666	0.81	0.1	200	95.1	80	120	
66	Zn	72	204.687	236867	0.48	21.3	200	91.7	80	120	
75	As	72	275.469	257889	0.10	89.5	200	93.0	80	120	
78	Se	72	205.597	15077	0.16	14.9	200	95.4	80	120	
88	Sr	115	654.560	3512787	1.28	446.9	200	103.8	80	120	
95	Mo	115	224.735	767182	0.25	21.9	200	101.4	80	120	
107	Ag	115	193.328	2067197	2.82	0.0	200	96.6	80	120	
111	Cd	115	185.568	345754	0.96	0.0	200	92.8	80	120	
118	Sn	115	207.622	864052	0.31	0.1	200	103.7	80	120	
121	Sb	115	435.277	3008446	0.66	244.2	200	95.5	80	120	
137	Ba	115	258.575	586228	0.25	67.3	200	95.7	80	120	
205	Tl	209	198.574	5202847	1.78	0.1	200	99.3	80	120	
208	Pb	209	198.378	6905171	1.19	0.1	200	99.1	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1002027	0.22	1141841	87.76	70	120	
72	Ge	759238	0.11	848746	89.45	70	120	
115	In	8142323	2.38	9174766	88.75	70	120	
209	Bi	16790722	1.21	18816731	89.23	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	6/5/2014 13:47	Sample Name	1405261-24A MSD
Data Batch	140605.b	Comment	MSD ICPMS_TW
Data File Name	121_MSS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	189.799	8186	1.19	0.0	200	94.9	80	120	
11	B	45	772.492	16511	1.60	557.2	200	107.6	80	120	
23	Na	45	24867.840	14114051	1.69	20063.1	1000	480.5	80	120	Fail
24	Mg	45	13543.831	4116876	1.16	9085.2	1000	445.9	80	120	Fail
27	Al	45	4867.412	810399	0.55	11.8	1000	485.6	80	120	Fail
39	K	45	18198.062	6960537	1.21	13445.4	1000	475.3	80	120	Fail
44	Ca	45	########	3439833	0.42	152493.1	1000	326.4	80	120	Fail
47	Ti	45	207.961	28223	0.95	0.2	200	103.9	80	120	
51	V	45	210.674	872102	0.81	13.4	200	98.6	80	120	
52	Cr	45	197.377	943194	0.22	0.0	200	98.7	80	120	
55	Mn	45	194.404	652599	0.24	1.4	200	96.5	80	120	
56	Fe	45	5042.341	23611243	0.17	29.2	1000	501.3	80	120	Fail
59	Co	72	201.324	1468376	1.38	0.0	200	100.6	80	120	
60	Ni	72	193.432	367285	0.50	0.2	200	96.6	80	120	
63	Cu	72	192.160	985916	0.70	0.1	200	96.0	80	120	
66	Zn	72	206.359	238080	0.93	21.3	200	92.5	80	120	
75	As	72	277.786	259271	0.69	89.5	200	94.1	80	120	
78	Se	72	205.827	15048	1.74	14.9	200	95.5	80	120	
88	Sr	115	652.656	3486464	0.83	446.9	200	102.9	80	120	
95	Mo	115	228.366	776059	0.09	21.9	200	103.2	80	120	
107	Ag	115	196.012	2087221	0.99	0.0	200	98.0	80	120	
111	Cd	115	186.807	346509	1.17	0.0	200	93.4	80	120	
118	Sn	115	210.544	872207	0.29	0.1	200	105.2	80	120	
121	Sb	115	442.324	3042947	0.23	244.2	200	99.1	80	120	
137	Ba	115	261.402	589928	0.74	67.3	200	97.1	80	120	
205	Tl	209	200.080	5225484	0.34	0.1	200	100.0	80	120	
208	Pb	209	200.109	6942314	0.77	0.1	200	100.0	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	992042	0.54	1141841	86.88	70	120	
72	Ge	756949	0.17	848746	89.18	70	120	
115	In	8102657	0.78	9174766	88.31	70	120	
209	Bi	16735803	1.27	18816731	88.94	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	6/5/2014 13:48	Sample Name	CCV5-140605
Data Batch	140605.b	Comment	CCV ICPMS_TW
Data File Name	122_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	181.275	8012	1.23	200	90.6	90	110	
11	B	45	205.794	4614	2.24	200	102.9	90	110	
23	Na	45	4459.560	2612770	0.60	5000	89.2	90	110	Fail
24	Mg	45	4402.411	1371804	0.81	5000	88.0	90	110	Fail
27	Al	45	4758.442	811925	0.49	5000	95.2	90	110	
39	K	45	4569.673	1827104	1.10	5000	91.4	90	110	
44	Ca	45	4429.791	100581	1.38	5000	88.6	90	110	Fail
47	Ti	45	200.398	27870	0.41	200	100.2	90	110	
51	V	45	187.436	795470	0.81	200	93.7	90	110	
52	Cr	45	188.287	922199	0.58	200	94.1	90	110	
55	Mn	45	184.623	635158	0.63	200	92.3	90	110	
56	Fe	45	4910.337	23565221	1.37	5000	98.2	90	110	
59	Co	72	200.866	1461426	3.89	200	100.4	90	110	
60	Ni	72	195.645	370599	0.21	200	97.8	90	110	
63	Cu	72	196.079	1003629	0.28	200	98.0	90	110	
66	Zn	72	187.232	215557	0.49	200	93.6	90	110	
75	As	72	182.960	170428	0.57	200	91.5	90	110	
78	Se	72	190.337	13889	1.20	200	95.2	90	110	
88	Sr	115	197.728	1085870	0.50	200	98.9	90	110	
95	Mo	115	195.987	684532	0.15	200	98.0	90	110	
107	Ag	115	200.766	2197092	1.07	200	100.4	90	110	
111	Cd	115	182.444	347830	0.83	200	91.2	90	110	
118	Sn	115	196.064	834946	1.15	200	98.0	90	110	
121	Sb	115	188.968	1336394	0.83	200	94.5	90	110	
137	Ba	115	184.006	426826	0.75	200	92.0	90	110	
205	Tl	209	190.514	5132096	2.08	200	95.3	90	110	
208	Pb	209	189.830	6793724	0.35	200	94.9	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1016658	0.58	1141841	89.04	70	120	
72	Ge	755205	0.91	848746	88.98	70	120	
115	In	8329018	1.66	9174766	90.78	70	120	
209	Bi	17265198	1.39	18816731	91.75	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	6/5/2014 13:52	Sample Name	LCVL5-140605
Data Batch	140605.b	Comment	LCVLICPMS_TW
Data File Name	124LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.992	48	17.23	1	99.2	70	130	
11	B	45	23.804	692	10.92	20	119.0	70	130	
23	Na	45	145.100	112108	0.57	100	145.1	70	130	Fail
24	Mg	45	107.920	35781	1.17	100	107.9	70	130	
27	Al	45	88.614	16335	1.14	100	88.6	70	130	
39	K	45	99.635	90622	0.59	100	99.6	70	130	
44	Ca	45	103.524	2790	3.25	100	103.5	70	130	
47	Ti	45	4.750	692	11.94	5	95.0	70	130	
51	V	45	1.041	7481	1.20	1	104.1	70	130	
52	Cr	45	4.690	26220	1.31	5	93.8	70	130	
55	Mn	45	4.562	16686	1.94	5	91.2	70	130	
56	Fe	45	89.152	458107	0.14	100	89.2	70	130	
59	Co	72	4.839	37215	2.52	5	96.8	70	130	
60	Ni	72	4.799	10112	3.08	5	96.0	70	130	
63	Cu	72	4.913	27882	1.39	5	98.3	70	130	
66	Zn	72	4.433	5929	1.51	5	88.7	70	130	
75	As	72	4.458	4549	1.48	5	89.2	70	130	
78	Se	72	4.878	449	4.84	5	97.6	70	130	
88	Sr	115	4.826	27662	0.42	5	96.5	70	130	
95	Mo	115	4.490	16256	0.91	5	89.8	70	130	
107	Ag	115	1.778	20185	1.08	2	88.9	70	130	
111	Cd	115	0.903	1816	6.26	1	90.3	70	130	
118	Sn	115	4.820	22071	1.51	5	96.4	70	130	
121	Sb	115	1.680	12558	3.26	2	84.0	70	130	
137	Ba	115	4.462	10788	1.83	5	89.2	70	130	
205	Tl	209	0.955	27693	0.43	1	95.5	70	130	
208	Pb	209	0.946	39795	0.78	1	94.6	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1062698	0.56	1141841	93.07	70	120	
72	Ge	794922	0.88	848746	93.66	70	120	
115	In	8616872	0.72	9174766	93.92	70	120	
209	Bi	18194147	0.65	18816731	96.69	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	6/5/2014 13:54	Sample Name	CCB5-140605
Data Batch	140605.b	Comment	CCB ICPMS_TW
Data File Name	125_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.026	4	41.7	0.4	0.3	
11	B	45	4.933	263	12.1	10	10	
23	Na	45	39.616	47940	1.0	50	100	
24	Mg	45	1.031	978	3.9	50	100	
27	Al	45	-0.328	481	6.9	50	10	
39	K	45	-2.801	48794	1.1	50	100	
44	Ca	45	1.864	384	13.0	50	100	
47	Ti	45	0.001	2	173.2	4	3	
51	V	45	0.163	3590	6.7	4	3	
52	Cr	45	-0.204	1217	9.8	2	2	
55	Mn	45	0.010	322	7.3	2	3	
56	Fe	45	0.119	11670	1.2	50	50	
59	Co	72	-0.006	109	14.5	2	3	
60	Ni	72	-0.155	249	11.2	2	3	
63	Cu	72	-0.069	1070	3.0	2	2	
66	Zn	72	-0.251	266	12.6	4	2	
75	As	72	0.013	194	3.0	2	2	
78	Se	72	0.072	82	19.5	1	2	
88	Sr	115	0.048	522	12.9	4	3	
95	Mo	115	0.025	121	19.3	2	2	
107	Ag	115	0.017	238	11.3	0.4	1	
111	Cd	115	-0.002	30	40.1	0.4	0.3	
118	Sn	115	-0.031	726	9.1	4	3	
121	Sb	115	0.023	436	10.2	2	0.8	
137	Ba	115	0.012	110	16.0	2	3	
205	Tl	209	0.041	1738	4.8	2	0.5	
208	Pb	209	0.015	4680	4.2	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1059724	0.48	1141841	92.81	70	120	
72	Ge	791301	0.45	848746	93.23	70	120	
115	In	8654403	1.97	9174766	94.33	70	120	
209	Bi	18190957	1.28	18816731	96.67	70	120	

Method Blank Report

Date Acquired	6/5/14 1:56 PM	Sample Name	MB-63851
Data Batch	140605.b	Comment	MBLKICPMS_TW
Data File Name	126_LRB.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.070	6	50.94		
11	B	45	6.556	299	5.72		
23	Na	45	39.524	47707	1.06		
24	Mg	45	1.750	1207	5.50		
27	Al	45	1.464	797	10.26		
39	K	45	-2.763	48628	0.63		
44	Ca	45	2.891	407	21.50		
47	Ti	45	0.009	3	173.21		
51	V	45	0.246	3939	3.65		
52	Cr	45	-0.201	1227	4.45		
55	Mn	45	0.014	333	10.54		
56	Fe	45	0.906	15548	4.04		
59	Co	72	-0.008	94	25.04		
60	Ni	72	-0.170	216	5.43		
63	Cu	72	-0.024	1303	0.51		
66	Zn	72	1.561	2426	2.32		
75	As	72	0.012	192	3.89		
78	Se	72	-0.057	71	11.54		
88	Sr	115	0.036	459	6.87		
95	Mo	115	0.017	96	10.07		
107	Ag	115	0.011	180	12.14		
111	Cd	115	-0.004	27	33.08		
118	Sn	115	-0.059	611	8.88		
121	Sb	115	0.015	389	8.59		
137	Ba	115	0.002	88	32.29		
205	Tl	209	0.024	1286	6.57		
208	Pb	209	0.006	4436	3.21		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1055792	0.60	1141841	92.46	70	120	
72	Ge	784761	0.43	848746	92.46	70	120	
115	In	8811143	0.87	9174766	96.04	70	120	
209	Bi	18562944	1.76	18816731	98.65	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	6/5/2014 13:58	Sample Name	LCS-63851
Data Batch	140605.b	Comment	LCS ICPMS_TW
Data File Name	127_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	192.844	8453	1.66	200	192.8	80	120	
11	B	45	207.008	4601	3.44	200	207.0	80	120	
23	Na	45	5025.368	2916521	0.57	5000	5025.4	80	120	
24	Mg	45	5141.450	1588586	1.32	5000	5141.5	80	120	
27	Al	45	4868.074	823632	0.76	5000	4868.1	80	120	
39	K	45	5137.554	2030981	0.75	5000	5137.6	80	120	
44	Ca	45	4893.400	110133	0.26	5000	4893.4	80	120	
47	Ti	45	206.221	28437	0.95	200	206.2	80	120	
51	V	45	197.073	829191	0.58	200	197.1	80	120	
52	Cr	45	199.001	966360	0.86	200	199.0	80	120	
55	Mn	45	195.799	667931	0.71	200	195.8	80	120	
56	Fe	45	5132.775	24424598	1.80	5000	5132.8	80	120	
59	Co	72	213.901	1544509	2.78	200	213.9	80	120	
60	Ni	72	207.836	390638	0.68	200	207.8	80	120	
63	Cu	72	209.074	1061807	0.43	200	209.1	80	120	
66	Zn	72	196.903	224912	1.01	200	196.9	80	120	
75	As	72	192.423	177850	0.10	200	192.4	80	120	
78	Se	72	197.077	14267	1.22	200	197.1	80	120	
88	Sr	115	205.789	1119204	0.11	200	205.8	80	120	
95	Mo	115	204.587	707704	0.21	200	204.6	80	120	
107	Ag	115	198.123	2147402	2.03	200	198.1	80	120	
111	Cd	115	191.920	362341	0.72	200	191.9	80	120	
118	Sn	115	208.148	877714	0.09	200	208.1	80	120	
121	Sb	115	189.758	1328966	0.34	200	189.8	80	120	
137	Ba	115	194.706	447292	0.30	200	194.7	80	120	
205	Tl	209	196.503	5332752	1.38	200	196.5	80	120	
208	Pb	209	201.819	7275166	1.10	200	201.8	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1008149	1.12	1141841	88.29	70	120	
72	Ge	749356	0.14	848746	88.29	70	120	
115	In	8247573	0.62	9174766	89.89	70	120	
209	Bi	17388623	0.40	18816731	92.41	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	6/5/2014 14:00	Sample Name	LCSD-63851
Data Batch	140605.b	Comment	LCSDICPMS_TW
Data File Name	128_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	190.469	8334	0.84	200	190.5	80	120	
11	B	45	212.794	4718	1.91	200	212.8	80	120	
23	Na	45	4946.847	2866830	1.41	5000	4946.8	80	120	
24	Mg	45	5096.187	1572052	1.92	5000	5096.2	80	120	
27	Al	45	4861.184	821151	0.59	5000	4861.2	80	120	
39	K	45	5053.674	1995282	1.23	5000	5053.7	80	120	
44	Ca	45	4897.337	110047	1.16	5000	4897.3	80	120	
47	Ti	45	212.252	29225	1.00	200	212.3	80	120	
51	V	45	198.165	832436	0.55	200	198.2	80	120	
52	Cr	45	200.697	973007	1.19	200	200.7	80	120	
55	Mn	45	195.728	666608	0.11	200	195.7	80	120	
56	Fe	45	5040.049	23944403	0.47	5000	5040.0	80	120	
59	Co	72	206.856	1498758	0.67	200	206.9	80	120	
60	Ni	72	205.310	387227	0.47	200	205.3	80	120	
63	Cu	72	207.329	1056584	0.03	200	207.3	80	120	
66	Zn	72	195.656	224265	0.57	200	195.7	80	120	
75	As	72	192.052	178119	0.28	200	192.1	80	120	
78	Se	72	200.427	14558	1.23	200	200.4	80	120	
88	Sr	115	209.071	1125453	0.51	200	209.1	80	120	
95	Mo	115	205.611	703970	0.91	200	205.6	80	120	
107	Ag	115	201.884	2165946	1.80	200	201.9	80	120	
111	Cd	115	193.390	361405	0.30	200	193.4	80	120	
118	Sn	115	209.705	875319	0.56	200	209.7	80	120	
121	Sb	115	192.637	1335421	0.41	200	192.6	80	120	
137	Ba	115	196.276	446326	0.30	200	196.3	80	120	
205	Tl	209	199.598	5415498	1.83	200	199.6	80	120	
208	Pb	209	201.039	7244699	0.86	200	201.0	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1006486	0.38	1141841	88.15	70	120	
72	Ge	751941	0.34	848746	88.59	70	120	
115	In	8164057	0.98	9174766	88.98	70	120	
209	Bi	17383757	1.27	18816731	92.38	70	120	

Dilution Sample (Dil) Report

Date Acquired	6/5/2014 14:06	Sample Name	1405265-16A SD
Data Batch	140605.b	Comment	SD ICPMS_TW
Data File Name	131_SD.d	Dilution	50

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
9	Be	45	-0.024	1	43.30	0.0	313.1	110	90	
11	B	45	28.974	791	1.99	106.8	135.7	110	90	
23	Na	45	6234.255	3720663	0.79	29232.2	106.6	110	90	Good
24	Mg	45	1519.973	484081	0.57	7161.4	106.1	110	90	Good
27	Al	45	0.164	557	13.13	1.8	45.5	110	90	
39	K	45	199.101	128086	0.73	929.7	107.1	110	90	Good
44	Ca	45	5538.057	128330	1.05	26536.7	104.3	110	90	Good
47	Ti	45	0.049	9	86.60	0.0	971.0	110	90	
51	V	45	0.161	3507	5.64	0.2	417.9	110	90	
52	Cr	45	-0.139	1517	6.30	0.0	1659.8	110	90	
55	Mn	45	0.002	286	5.99	0.1	13.4	110	90	
56	Fe	45	-0.052	10598	3.64	0.8	-33.6	110	90	
59	Co	72	0.006	198	12.42	0.1	47.9	110	90	
60	Ni	72	0.017	580	13.95	0.5	17.8	110	90	
63	Cu	72	0.065	1763	4.09	0.6	55.6	110	90	
66	Zn	72	7.851	9883	1.64	37.4	104.8	110	90	Good
75	As	72	0.185	358	4.71	0.8	119.3	110	90	
78	Se	72	0.470	110	9.57	1.6	144.6	110	90	
88	Sr	115	81.909	461189	0.25	407.9	100.4	110	90	Good
95	Mo	115	0.042	182	11.90	0.2	131.0	110	90	
107	Ag	115	0.017	231	9.27	0.0	341.9	110	90	
111	Cd	115	-0.009	14	58.06	0.0	-301.5	110	90	
118	Sn	115	-0.044	656	14.13	0.0	612.4	110	90	
121	Sb	115	0.002	277	28.49	0.0	64.0	110	90	
137	Ba	115	0.545	1375	8.73	2.4	115.4	110	90	
205	Tl	209	0.037	1571	7.11	0.1	353.1	110	90	
208	Pb	209	0.058	6049	1.18	0.2	116.4	110	90	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1038276	1.13	1141841	90.93	70	120	
72	Ge	780846	0.28	848746	92.00	70	120	
115	In	8536284	1.05	9174766	93.04	70	120	
209	Bi	17464621	0.71	18816731	92.81	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	6/5/2014 14:18	Sample Name	1405265-16A PDS
Data Batch	140605.b	Comment	PDS ICPMS_TW
Data File Name	137_PDS.d	Dilution	10

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	204.331	9084	0.19	0.0	200	102.2	75	125	
11	B	45	324.231	7228	2.48	106.8	200	108.7	75	125	
23	Na	45	36954.206	21606770	1.81	29232.2	5000	154.4	75	125	Fail
24	Mg	45	13225.481	4143700	0.91	7161.4	5000	121.3	75	125	
27	Al	45	4999.031	857910	0.59	1.8	5000	99.9	75	125	
39	K	45	6830.126	2722790	1.16	929.7	5000	118.0	75	125	
44	Ca	45	33773.998	769105	0.59	26536.7	5000	144.7	75	125	Fail
47	Ti	45	213.301	29838	1.98	0.0	200	106.6	75	125	
51	V	45	210.725	899155	0.64	0.2	200	105.3	75	125	
52	Cr	45	214.626	1056964	1.00	0.0	200	107.3	75	125	
55	Mn	45	210.017	726674	0.31	0.1	200	105.0	75	125	
56	Fe	45	5044.556	24348358	1.67	0.8	5000	100.9	75	125	
59	Co	72	223.692	1670503	3.80	0.1	200	111.8	75	125	
60	Ni	72	216.589	420899	0.48	0.5	200	108.1	75	125	
63	Cu	72	210.483	1105302	0.78	0.6	200	105.0	75	125	
66	Zn	72	242.135	285853	0.52	37.4	200	102.3	75	125	
75	As	72	202.539	193554	0.73	0.8	200	100.9	75	125	
78	Se	72	209.976	15712	0.57	1.6	200	104.2	75	125	
88	Sr	115	665.481	3623064	0.67	407.9	200	128.8	75	125	Fail
95	Mo	115	205.442	711519	0.87	0.2	200	102.6	75	125	
107	Ag	115	246.834	2678806	1.10	0.0	200	123.4	75	125	
111	Cd	115	205.566	388576	0.46	0.0	200	102.8	75	125	
118	Sn	115	220.197	929591	0.11	0.0	200	110.1	75	125	
121	Sb	115	194.046	1360606	0.46	0.0	200	97.0	75	125	
137	Ba	115	213.631	491355	0.72	2.4	200	105.6	75	125	
205	Tl	209	208.216	5681836	0.64	0.1	200	104.1	75	125	
208	Pb	209	218.380	7914953	0.52	0.2	200	109.1	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1022563	0.46	1141841	89.55	70	120	
72	Ge	774871	1.21	848746	91.30	70	120	
115	In	8257305	0.21	9174766	90.00	70	120	
209	Bi	17484492	0.85	18816731	92.92	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	6/5/2014 14:20	Sample Name	1405265-16AMS
Data Batch	140605.b	Comment	MS ICPMS_TW
Data File Name	138_MSS.d	Dilution	10

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	17.775	804	3.29	0.0	200	8.9	80	120	Fail
11	B	45	131.993	3075	4.26	106.8	200	12.6	80	120	Fail
23	Na	45	29445.184	17482136	1.06	29232.2	1000	21.3	80	120	Fail
24	Mg	45	7501.440	2386015	0.45	7161.4	1000	34.0	80	120	Fail
27	Al	45	480.060	84105	1.23	1.8	1000	47.8	80	120	Fail
39	K	45	1398.004	604638	1.23	929.7	1000	46.8	80	120	Fail
44	Ca	45	26516.492	613023	0.55	26536.7	1000	-2.0	80	120	Fail
47	Ti	45	20.592	2926	2.21	0.0	200	10.3	80	120	Fail
51	V	45	19.436	86736	1.56	0.2	200	9.6	80	120	Fail
52	Cr	45	19.405	99020	1.03	0.0	200	9.7	80	120	Fail
55	Mn	45	18.810	66322	1.04	0.1	200	9.4	80	120	Fail
56	Fe	45	507.039	2494025	1.02	0.8	1000	50.6	80	120	Fail
59	Co	72	19.274	145121	1.18	0.1	200	9.6	80	120	Fail
60	Ni	72	20.114	39878	0.61	0.5	200	9.8	80	120	Fail
63	Cu	72	20.238	108351	0.56	0.6	200	9.8	80	120	Fail
66	Zn	72	55.170	66049	0.97	37.4	200	8.9	80	120	Fail
75	As	72	19.355	18798	1.17	0.8	200	9.3	80	120	Fail
78	Se	72	21.024	1653	2.42	1.6	200	9.7	80	120	Fail
88	Sr	115	425.314	2371032	0.18	407.9	200	8.7	80	120	Fail
95	Mo	115	20.090	71270	0.99	0.2	200	10.0	80	120	Fail
107	Ag	115	18.828	209251	0.32	0.0	200	9.4	80	120	Fail
111	Cd	115	18.582	35993	1.75	0.0	200	9.3	80	120	Fail
118	Sn	115	20.662	90080	0.39	0.0	200	10.3	80	120	Fail
121	Sb	115	19.387	139425	0.37	0.0	200	9.7	80	120	Fail
137	Ba	115	21.368	50388	1.14	2.4	200	9.5	80	120	Fail
205	Tl	209	19.085	515475	1.01	0.1	200	9.5	80	120	Fail
208	Pb	209	19.514	702920	0.93	0.2	200	9.6	80	120	Fail

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1037984	0.28	1141841	90.90	70	120	
72	Ge	780647	0.76	848746	91.98	70	120	
115	In	8455743	1.37	9174766	92.16	70	120	
209	Bi	17290142	1.32	18816731	91.89	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	6/5/2014 14:21	Sample Name	1405265-16AMSD
Data Batch	140605.b	Comment	MSD ICPMS_TW
Data File Name	139_MSS.d	Dilution	10

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	17.941	805	5.61	0.0	200	9.0	80	120	Fail
11	B	45	129.170	2987	2.90	106.8	200	11.2	80	120	Fail
23	Na	45	29586.953	17416829	1.11	29232.2	1000	35.5	80	120	Fail
24	Mg	45	7475.122	2357556	2.00	7161.4	1000	31.4	80	120	Fail
27	Al	45	472.250	82041	1.21	1.8	1000	47.0	80	120	Fail
39	K	45	1392.145	597174	0.09	929.7	1000	46.2	80	120	Fail
44	Ca	45	26496.836	607349	0.31	26536.7	1000	-4.0	80	120	Fail
47	Ti	45	20.500	2888	1.20	0.0	200	10.2	80	120	Fail
51	V	45	19.303	85425	0.74	0.2	200	9.6	80	120	Fail
52	Cr	45	19.194	97133	0.39	0.0	200	9.6	80	120	Fail
55	Mn	45	18.983	66363	1.56	0.1	200	9.5	80	120	Fail
56	Fe	45	502.708	2451836	1.01	0.8	1000	50.2	80	120	Fail
59	Co	72	19.174	143159	0.53	0.1	200	9.6	80	120	Fail
60	Ni	72	19.783	38906	2.25	0.5	200	9.7	80	120	Fail
63	Cu	72	19.932	105848	1.20	0.6	200	9.7	80	120	Fail
66	Zn	72	56.019	66503	0.77	37.4	200	9.3	80	120	Fail
75	As	72	19.365	18651	1.24	0.8	200	9.3	80	120	Fail
78	Se	72	21.479	1673	4.26	1.6	200	9.9	80	120	Fail
88	Sr	115	420.894	2341729	0.45	407.9	200	6.5	80	120	Fail
95	Mo	115	19.955	70659	1.52	0.2	200	9.9	80	120	Fail
107	Ag	115	18.635	206699	0.83	0.0	200	9.3	80	120	Fail
111	Cd	115	18.386	35544	0.18	0.0	200	9.2	80	120	Fail
118	Sn	115	20.264	88194	2.29	0.0	200	10.2	80	120	Fail
121	Sb	115	18.735	134478	0.06	0.0	200	9.4	80	120	Fail
137	Ba	115	20.716	48763	1.12	2.4	200	9.2	80	120	Fail
205	Tl	209	18.860	506587	0.52	0.1	200	9.4	80	120	Fail
208	Pb	209	19.217	688459	0.16	0.2	200	9.5	80	120	Fail

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1029160	0.46	1141841	90.13	70	120	
72	Ge	774142	0.21	848746	91.21	70	120	
115	In	8438572	1.04	9174766	91.98	70	120	
209	Bi	17193947	0.71	18816731	91.38	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	6/5/2014 14:27	Sample Name	CCV6-140402
Data Batch	140605.b	Comment	CCV ICPMS_TW
Data File Name	142_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	182.650	7926	1.75	200	91.3	90	110	
11	B	45	198.786	4381	1.52	200	99.4	90	110	
23	Na	45	4465.325	2568553	2.49	5000	89.3	90	110	Fail
24	Mg	45	4618.246	1412794	1.64	5000	92.4	90	110	
27	Al	45	4783.667	801335	0.59	5000	95.7	90	110	
39	K	45	4627.952	1816074	1.65	5000	92.6	90	110	
44	Ca	45	4453.547	99269	0.33	5000	89.1	90	110	Fail
47	Ti	45	199.858	27288	0.32	200	99.9	90	110	
51	V	45	186.954	778956	0.16	200	93.5	90	110	
52	Cr	45	190.363	915319	0.24	200	95.2	90	110	
55	Mn	45	187.151	632095	0.53	200	93.6	90	110	
56	Fe	45	4970.181	23415891	0.60	5000	99.4	90	110	
59	Co	72	197.466	1418277	1.19	200	98.7	90	110	
60	Ni	72	196.893	368131	0.21	200	98.4	90	110	
63	Cu	72	197.336	996947	0.34	200	98.7	90	110	
66	Zn	72	187.893	213502	1.19	200	93.9	90	110	
75	As	72	183.738	168929	0.53	200	91.9	90	110	
78	Se	72	192.151	13838	1.48	200	96.1	90	110	
88	Sr	115	198.308	1075377	0.55	200	99.2	90	110	
95	Mo	115	194.476	670768	0.76	200	97.2	90	110	
107	Ag	115	201.879	2181994	1.87	200	100.9	90	110	
111	Cd	115	182.943	344404	0.22	200	91.5	90	110	
118	Sn	115	195.909	823787	0.24	200	98.0	90	110	
121	Sb	115	190.189	1328174	0.48	200	95.1	90	110	
137	Ba	115	186.793	427875	0.54	200	93.4	90	110	
205	Tl	209	190.356	5107910	1.58	200	95.2	90	110	
208	Pb	209	192.441	6859107	0.07	200	96.2	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	998105	0.47	1141841	87.41	70	120	
72	Ge	745386	0.36	848746	87.82	70	120	
115	In	8224262	1.11	9174766	89.64	70	120	
209	Bi	17193522	0.79	18816731	91.37	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	6/5/2014 14:31	Sample Name	LCVL6-140402
Data Batch	140605.b	Comment	LCVLICPMS_TW
Data File Name	144LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.916	43	39.74	1	91.6	70	130	
11	B	45	18.472	549	4.64	20	92.4	70	130	
23	Na	45	117.269	91480	0.42	100	117.3	70	130	
24	Mg	45	106.434	33911	0.55	100	106.4	70	130	
27	Al	45	88.791	15725	0.51	100	88.8	70	130	
39	K	45	102.063	88018	0.65	100	102.1	70	130	
44	Ca	45	99.784	2596	0.86	100	99.8	70	130	
47	Ti	45	5.054	708	4.27	5	101.1	70	130	
51	V	45	1.022	7107	0.69	1	102.2	70	130	
52	Cr	45	4.782	25642	0.17	5	95.6	70	130	
55	Mn	45	4.718	16569	0.87	5	94.4	70	130	
56	Fe	45	88.672	437834	0.25	100	88.7	70	130	
59	Co	72	4.879	36070	1.51	5	97.6	70	130	
60	Ni	72	4.956	10021	1.90	5	99.1	70	130	
63	Cu	72	4.968	27085	0.41	5	99.4	70	130	
66	Zn	72	4.542	5827	4.39	5	90.8	70	130	
75	As	72	4.621	4527	0.51	5	92.4	70	130	
78	Se	72	5.154	452	9.69	5	103.1	70	130	
88	Sr	115	4.844	26955	0.63	5	96.9	70	130	
95	Mo	115	4.452	15654	2.63	5	89.0	70	130	
107	Ag	115	1.738	19155	1.27	2	86.9	70	130	
111	Cd	115	0.962	1876	3.53	1	96.2	70	130	
118	Sn	115	4.887	21721	0.98	5	97.7	70	130	
121	Sb	115	1.669	12113	1.54	2	83.4	70	130	
137	Ba	115	4.487	10533	0.55	5	89.7	70	130	
205	Tl	209	0.994	27295	1.60	1	99.4	70	130	
208	Pb	209	0.979	38873	1.38	1	97.9	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1021028	0.45	1141841	89.42	70	120	
72	Ge	764188	1.05	848746	90.04	70	120	
115	In	8366837	1.11	9174766	91.19	70	120	
209	Bi	17249475	0.60	18816731	91.67	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	6/5/2014 14:33	Sample Name	CCB6-140402
Data Batch	140605.b	Comment	CCB ICPMS_TW
Data File Name	145_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	-0.046	0	173.2	0.4	0.3	
11	B	45	1.933	190	23.6	10	10	
23	Na	45	13.275	31127	1.4	50	100	
24	Mg	45	-0.915	337	15.2	50	100	
27	Al	45	-0.444	448	18.4	50	10	
39	K	45	-0.439	48402	1.2	50	100	
44	Ca	45	-3.727	246	14.5	50	100	
47	Ti	45	0.025	6	91.6	4	3	
51	V	45	0.083	3148	4.2	4	3	
52	Cr	45	-0.191	1251	3.9	2	2	
55	Mn	45	0.002	283	18.4	2	3	
56	Fe	45	-0.501	8336	1.7	50	50	
59	Co	72	-0.002	131	16.1	2	3	
60	Ni	72	-0.147	256	9.8	2	3	
63	Cu	72	-0.110	829	8.2	2	2	
66	Zn	72	-0.253	256	6.6	4	2	
75	As	72	0.017	193	8.8	2	2	
78	Se	72	0.139	84	2.3	1	2	
88	Sr	115	0.019	348	16.0	4	3	
95	Mo	115	0.023	111	14.8	2	2	
107	Ag	115	0.019	258	16.5	0.4	1	
111	Cd	115	-0.006	21	59.8	0.4	0.3	
118	Sn	115	-0.041	661	11.7	4	3	
121	Sb	115	0.014	362	10.1	2	0.8	
137	Ba	115	0.003	86	2.3	2	3	
205	Tl	209	0.035	1516	5.4	2	0.5	
208	Pb	209	0.000	3962	3.1	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1030905	0.08	1141841	90.28	70	120	
72	Ge	769089	1.09	848746	90.61	70	120	
115	In	8413460	1.43	9174766	91.70	70	120	
209	Bi	17475477	1.47	18816731	92.87	70	120	

Method Blank Report

Date Acquired	6/5/14 2:35 PM	Sample Name	MB-63952
Data Batch	140605.b	Comment	MBLKICPMS_TW
Data File Name	146_LRB.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	-0.002	2	137.77		
11	B	45	0.782	167	13.11		
23	Na	45	14.597	32283	0.83		
24	Mg	45	1.388	1077	1.72		
27	Al	45	42.719	8003	5.50		Fail
39	K	45	-1.245	48653	0.74		
44	Ca	45	0.160	339	14.80		
47	Ti	45	0.079	13	75.02		
51	V	45	0.141	3439	3.24		
52	Cr	45	-0.217	1134	3.24		
55	Mn	45	-0.014	231	10.13		
56	Fe	45	0.126	11526	3.64		
59	Co	72	-0.003	126	26.60		
60	Ni	72	-0.179	198	4.87		
63	Cu	72	-0.088	961	1.44		
66	Zn	72	0.224	830	3.68		
75	As	72	0.013	193	9.16		
78	Se	72	0.012	76	19.14		
88	Sr	115	0.030	407	12.88		
95	Mo	115	0.014	81	31.92		
107	Ag	115	0.021	284	9.10		
111	Cd	115	0.001	36	30.14		
118	Sn	115	-0.036	688	1.70		
121	Sb	115	0.018	393	9.55		
137	Ba	115	0.006	93	16.37		
205	Tl	209	0.031	1407	1.64		
208	Pb	209	0.006	4226	11.69		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1043141	0.93	1141841	91.36	70	120	
72	Ge	784625	0.16	848746	92.45	70	120	
115	In	8489804	0.70	9174766	92.53	70	120	
209	Bi	17664633	1.79	18816731	93.88	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	6/5/2014 14:41	Sample Name	LCS-63952
Data Batch	140605.b	Comment	LCS ICPMS_TW
Data File Name	149_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	191.996	8579	1.40	200	192.0	80	120	
11	B	45	214.893	4864	3.00	200	214.9	80	120	
23	Na	45	4900.603	2900124	1.18	5000	4900.6	80	120	Fail
24	Mg	45	5007.647	1577322	1.46	5000	5007.6	80	120	
27	Al	45	4865.425	839209	0.64	5000	4865.4	80	120	
39	K	45	5085.659	2050053	0.59	5000	5085.7	80	120	
44	Ca	45	4965.057	113919	0.70	5000	4965.1	80	120	
47	Ti	45	210.766	29631	1.40	200	210.8	80	120	
51	V	45	198.783	852654	0.71	200	198.8	80	120	
52	Cr	45	200.379	991969	0.87	200	200.4	80	120	
55	Mn	45	197.503	686855	0.88	200	197.5	80	120	
56	Fe	45	5058.706	24540152	1.24	5000	5058.7	80	120	
59	Co	72	214.119	1570197	0.82	200	214.1	80	120	
60	Ni	72	209.656	400207	0.68	200	209.7	80	120	
63	Cu	72	208.493	1075404	0.93	200	208.5	80	120	
66	Zn	72	197.981	229672	0.20	200	198.0	80	120	
75	As	72	191.853	180093	0.47	200	191.9	80	120	
78	Se	72	201.452	14809	0.87	200	201.5	80	120	
88	Sr	115	206.252	1161891	0.88	200	206.3	80	120	
95	Mo	115	202.987	727330	1.16	200	203.0	80	120	
107	Ag	115	199.687	2242112	1.49	200	199.7	80	120	
111	Cd	115	188.218	368086	0.91	200	188.2	80	120	
118	Sn	115	205.510	897637	1.04	200	205.5	80	120	
121	Sb	115	193.595	1404260	0.54	200	193.6	80	120	
137	Ba	115	194.782	463445	0.62	200	194.8	80	120	
205	Tl	209	200.122	5533386	0.31	200	200.1	80	120	
208	Pb	209	204.836	7522358	0.50	200	204.8	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1027723	0.32	1141841	90.01	70	120	
72	Ge	761056	0.29	848746	89.67	70	120	
115	In	8542932	1.12	9174766	93.11	70	120	
209	Bi	17719650	1.84	18816731	94.17	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	6/5/2014 14:43	Sample Name	LCSD-63952
Data Batch	140605.b	Comment	LCSDICPMS_TW
Data File Name	150_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	188.919	8273	0.96	200	188.9	80	120	
11	B	45	216.907	4812	6.20	200	216.9	80	120	
23	Na	45	5061.987	2935090	1.90	5000	5062.0	80	120	Fail
24	Mg	45	5085.866	1569900	0.68	5000	5085.9	80	120	
27	Al	45	4870.385	823274	0.37	5000	4870.4	80	120	
39	K	45	5179.252	2044831	3.55	5000	5179.3	80	120	
44	Ca	45	4965.757	111661	0.68	5000	4965.8	80	120	
47	Ti	45	212.895	29335	1.45	200	212.9	80	120	
51	V	45	200.308	842016	0.58	200	200.3	80	120	
52	Cr	45	202.138	980652	0.85	200	202.1	80	120	
55	Mn	45	198.680	677146	0.76	200	198.7	80	120	
56	Fe	45	5047.293	23994978	1.35	5000	5047.3	80	120	
59	Co	72	212.459	1552261	0.21	200	212.5	80	120	
60	Ni	72	206.321	392403	0.79	200	206.3	80	120	
63	Cu	72	206.464	1061025	0.38	200	206.5	80	120	
66	Zn	72	195.577	226058	0.52	200	195.6	80	120	
75	As	72	192.450	179984	0.40	200	192.4	80	120	
78	Se	72	200.571	14691	1.40	200	200.6	80	120	
88	Sr	115	212.526	1148941	0.50	200	212.5	80	120	
95	Mo	115	208.852	718141	0.68	200	208.9	80	120	
107	Ag	115	207.198	2232610	0.91	200	207.2	80	120	
111	Cd	115	195.274	366483	0.63	200	195.3	80	120	
118	Sn	115	210.772	883463	0.85	200	210.8	80	120	
121	Sb	115	197.540	1375198	0.52	200	197.5	80	120	
137	Ba	115	197.547	451107	1.12	200	197.5	80	120	
205	Tl	209	201.762	5509167	0.52	200	201.8	80	120	
208	Pb	209	203.838	7393332	0.54	200	203.8	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1007229	0.77	1141841	88.21	70	120	
72	Ge	758259	0.46	848746	89.34	70	120	
115	In	8198364	0.37	9174766	89.36	70	120	
209	Bi	17497459	1.15	18816731	92.99	70	120	

Dilution Sample (Dil) Report

Date Acquired	6/5/2014 14:49	Sample Name	1405381-01A SD
Data Batch	140605.b	Comment	SD ICPMS_TW
Data File Name	153_SD.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
9	Be	45	0.485	24	56.10	2.1	113.4	110	90	
11	B	45	488.892	11018	2.29	2342.6	104.3	110	90	Good
23	Na	45	128379.735	76344866	1.16	647494.6	99.1	110	90	Good
24	Mg	45	38968.601	12426361	0.56	194008.2	100.4	110	90	Good
27	Al	45	17.012	3499	0.73	75.1	113.2	110	90	
39	K	45	1491.487	643560	0.88	7680.6	97.1	110	90	Good
44	Ca	45	126302.347	2926632	0.52	631653.9	100.0	110	90	Good
47	Ti	45	0.243	37	31.49	1.5	79.5	110	90	
51	V	45	0.692	5814	2.12	2.4	145.6	110	90	
52	Cr	45	0.136	2897	4.23	1.1	61.5	110	90	
55	Mn	45	2992.951	10536452	1.22	14467.3	103.4	110	90	Good
56	Fe	45	11.114	65448	2.97	46.1	120.5	110	90	
59	Co	72	157.241	1184610	0.43	798.8	98.4	110	90	Good
60	Ni	72	101.500	199321	0.11	497.6	102.0	110	90	Good
63	Cu	72	8.301	45353	1.33	40.3	102.9	110	90	Good
66	Zn	72	50.935	61119	0.62	246.3	103.4	110	90	Good
75	As	72	0.537	697	10.13	2.5	108.0	110	90	Good
78	Se	72	0.673	126	16.01	4.1	82.9	110	90	
88	Sr	115	764.580	4207406	1.20	3842.0	99.5	110	90	Good
95	Mo	115	0.105	398	19.64	0.4	138.2	110	90	
107	Ag	115	0.069	804	45.05	0.1	263.0	110	90	
111	Cd	115	6.544	12535	1.92	31.3	104.4	110	90	Good
118	Sn	115	-0.001	824	7.24	0.2	-3.7	110	90	
121	Sb	115	0.039	532	1.91	0.2	123.9	110	90	
137	Ba	115	8.778	20483	2.75	44.1	99.6	110	90	Good
205	Tl	209	0.053	1923	11.44	0.1	210.7	110	90	
208	Pb	209	0.080	6546	4.56	0.3	146.2	110	90	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1040842	0.73	1141841	91.15	70	120	
72	Ge	781837	0.34	848746	92.12	70	120	
115	In	8346693	0.53	9174766	90.97	70	120	
209	Bi	16732330	1.51	18816731	88.92	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	6/5/2014 15:08	Sample Name	1405381-01A PDS
Data Batch	140605.b	Comment	PDS ICPMS_TW
Data File Name	163_PDS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	183.789	7704	0.38	2.1	200	90.8	75	125	
11	B	45	2371.539	48978	1.28	2342.6	200	14.5	75	125	Fail
23	Na	45	########	339155364	0.66	647494.6	5000	-634.2	75	125	Fail
24	Mg	45	########	54941716	0.25	194008.2	5000	-160.0	75	125	Fail
27	Al	45	4714.896	762949	0.40	75.1	5000	92.8	75	125	
39	K	45	12405.665	4626022	1.26	7680.6	5000	94.5	75	125	
44	Ca	45	########	12930232	1.63	631653.9	5000	-584.0	75	125	Fail
47	Ti	45	205.693	27130	1.15	1.5	200	102.1	75	125	
51	V	45	200.856	808219	0.36	2.4	200	99.2	75	125	
52	Cr	45	198.490	921843	0.17	1.1	200	98.7	75	125	
55	Mn	45	14197.569	46301674	0.37	14467.3	200	-134.9	75	125	Fail
56	Fe	45	4605.135	20959126	1.97	46.1	5000	91.2	75	125	
59	Co	72	956.877	6460790	0.44	798.8	200	79.0	75	125	
60	Ni	72	670.528	1177481	0.35	497.6	200	86.4	75	125	
63	Cu	72	231.103	1097448	0.55	40.3	200	95.4	75	125	
66	Zn	72	415.840	443642	0.28	246.3	200	84.8	75	125	
75	As	72	197.646	170833	0.52	2.5	200	97.6	75	125	
78	Se	72	215.658	14593	1.54	4.1	200	105.8	75	125	
88	Sr	115	3884.844	19266480	0.86	3842.0	200	21.4	75	125	Fail
95	Mo	115	198.144	625156	0.35	0.4	200	98.9	75	125	
107	Ag	115	182.440	1803729	0.62	0.1	200	91.2	75	125	
111	Cd	115	214.044	368580	0.09	31.3	200	91.3	75	125	
118	Sn	115	208.353	801335	0.74	0.2	200	104.1	75	125	
121	Sb	115	188.695	1205307	0.48	0.2	200	94.3	75	125	
137	Ba	115	240.971	504888	0.09	44.1	200	98.5	75	125	
205	Tl	209	205.513	4794196	0.19	0.1	200	102.7	75	125	
208	Pb	209	204.150	6325791	0.39	0.3	200	101.9	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	964145	0.06	1141841	84.44	70	120	
72	Ge	700791	0.51	848746	82.57	70	120	
115	In	7522402	0.64	9174766	81.99	70	120	
209	Bi	14948719	1.46	18816731	79.44	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	6/5/2014 15:10	Sample Name	1405381-01A MS
Data Batch	140605.b	Comment	MS ICPMS_TW
Data File Name	164_MSS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	178.140	8004	1.22	2.1	200	88.0	80	120	
11	B	45	2409.456	53334	1.41	2342.6	200	33.4	80	120	Fail
23	Na	45	########	362383203	1.60	647494.6	1000	#####	80	120	Fail
24	Mg	45	########	59814109	1.32	194008.2	1000	-508.1	80	120	Fail
27	Al	45	4833.133	838250	0.76	75.1	1000	475.8	80	120	Fail
39	K	45	12278.763	4907933	0.55	7680.6	1000	459.8	80	120	Fail
44	Ca	45	########	14115878	0.60	631653.9	1000	#####	80	120	Fail
47	Ti	45	217.771	30787	1.01	1.5	200	108.1	80	120	
51	V	45	201.795	870311	0.45	2.4	200	99.7	80	120	
52	Cr	45	196.449	977908	0.21	1.1	200	97.7	80	120	
55	Mn	45	14411.419	50374244	0.59	14467.3	200	-27.9	80	120	Fail
56	Fe	45	4905.309	23926894	0.95	46.1	1000	485.9	80	120	Fail
59	Co	72	967.975	6973351	1.56	798.8	200	84.6	80	120	
60	Ni	72	674.084	1262932	0.23	497.6	200	88.2	80	120	
63	Cu	72	233.444	1182749	0.36	40.3	200	96.5	80	120	
66	Zn	72	421.988	480329	0.68	246.3	200	87.8	80	120	
75	As	72	204.269	188362	0.35	2.5	200	100.9	80	120	
78	Se	72	222.016	16027	0.86	4.1	200	109.0	80	120	
88	Sr	115	3949.065	20946063	0.09	3842.0	200	53.5	80	120	Fail
95	Mo	115	216.269	729738	0.28	0.4	200	107.9	80	120	
107	Ag	115	193.172	2042515	0.59	0.1	200	96.5	80	120	
111	Cd	115	214.173	394436	0.22	31.3	200	91.4	80	120	
118	Sn	115	213.600	878552	0.45	0.2	200	106.7	80	120	
121	Sb	115	199.185	1360684	0.61	0.2	200	99.5	80	120	
137	Ba	115	239.825	537390	0.73	44.1	200	97.9	80	120	
205	Tl	209	205.364	5088358	1.26	0.1	200	102.6	80	120	
208	Pb	209	204.497	6730830	1.17	0.3	200	102.1	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1033403	0.53	1141841	90.50	70	120	
72	Ge	747683	0.67	848746	88.09	70	120	
115	In	8045739	1.19	9174766	87.69	70	120	
209	Bi	15877930	1.56	18816731	84.38	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	6/5/2014 15:12	Sample Name	1405381-01A MSD
Data Batch	140605.b	Comment	MSD ICPMS_TW
Data File Name	165_MSS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	178.377	7838	1.96	2.1	200	88.1	80	120	
11	B	45	2435.067	52707	0.35	2342.6	200	46.2	80	120	Fail
23	Na	45	########	354491293	0.39	647494.6	1000	#####	80	120	Fail
24	Mg	45	########	58293318	0.46	194008.2	1000	-571.5	80	120	Fail
27	Al	45	4815.858	816789	0.28	75.1	1000	474.1	80	120	Fail
39	K	45	12213.996	4775132	2.94	7680.6	1000	453.3	80	120	Fail
44	Ca	45	########	13724772	1.58	631653.9	1000	#####	80	120	Fail
47	Ti	45	220.036	30418	1.18	1.5	200	109.3	80	120	
51	V	45	204.899	864139	0.69	2.4	200	101.3	80	120	
52	Cr	45	197.563	961714	0.30	1.1	200	98.2	80	120	
55	Mn	45	14352.597	49061085	0.92	14467.3	200	-57.3	80	120	Fail
56	Fe	45	4935.462	23544255	1.46	46.1	1000	488.9	80	120	Fail
59	Co	72	967.365	6863634	3.01	798.8	200	84.3	80	120	
60	Ni	72	674.171	1243945	1.27	497.6	200	88.3	80	120	
63	Cu	72	231.937	1157273	1.01	40.3	200	95.8	80	120	
66	Zn	72	421.555	472562	1.60	246.3	200	87.6	80	120	
75	As	72	203.318	184637	0.83	2.5	200	100.4	80	120	
78	Se	72	221.907	15775	0.17	4.1	200	108.9	80	120	
88	Sr	115	3951.948	20576003	1.91	3842.0	200	55.0	80	120	Fail
95	Mo	115	217.437	720180	0.86	0.4	200	108.5	80	120	
107	Ag	115	188.128	1952724	2.40	0.1	200	94.0	80	120	
111	Cd	115	216.314	391046	0.75	31.3	200	92.5	80	120	
118	Sn	115	215.255	869103	0.45	0.2	200	107.5	80	120	
121	Sb	115	198.947	1334093	0.05	0.2	200	99.4	80	120	
137	Ba	115	244.629	538071	0.98	44.1	200	100.3	80	120	
205	Tl	209	207.662	5047402	0.20	0.1	200	103.8	80	120	
208	Pb	209	207.558	6700971	1.42	0.3	200	103.6	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1010580	0.71	1141841	88.50	70	120	
72	Ge	736316	0.93	848746	86.75	70	120	
115	In	7897283	0.80	9174766	86.08	70	120	
209	Bi	15573633	0.50	18816731	82.76	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	6/5/2014 15:14	Sample Name	CCV7-140402
Data Batch	140605.b	Comment	CCV ICPMS_TW
Data File Name	166_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	175.939	7866	1.69	200	88.0	90	110	Fail
11	B	45	215.932	4891	3.64	200	108.0	90	110	
23	Na	45	4605.811	2729229	2.41	5000	92.1	90	110	
24	Mg	45	4525.672	1426498	1.22	5000	90.5	90	110	
27	Al	45	4785.865	826027	0.73	5000	95.7	90	110	
39	K	45	4536.032	1834890	0.71	5000	90.7	90	110	
44	Ca	45	4587.014	105343	1.20	5000	91.7	90	110	
47	Ti	45	201.491	28345	1.11	200	100.7	90	110	
51	V	45	188.429	808905	0.44	200	94.2	90	110	
52	Cr	45	190.349	943066	0.90	200	95.2	90	110	
55	Mn	45	192.371	669447	0.77	200	96.2	90	110	
56	Fe	45	5028.023	24406490	0.69	5000	100.6	90	110	
59	Co	72	200.561	1488113	1.40	200	100.3	90	110	
60	Ni	72	196.551	379650	0.91	200	98.3	90	110	
63	Cu	72	195.585	1020811	0.39	200	97.8	90	110	
66	Zn	72	187.587	220209	0.61	200	93.8	90	110	
75	As	72	183.305	174107	0.20	200	91.7	90	110	
78	Se	72	193.319	14382	0.59	200	96.7	90	110	
88	Sr	115	197.589	1119748	0.35	200	98.8	90	110	
95	Mo	115	193.929	698995	0.21	200	97.0	90	110	
107	Ag	115	197.842	2234590	1.41	200	98.9	90	110	
111	Cd	115	181.294	356666	0.49	200	90.6	90	110	
118	Sn	115	197.452	867636	0.54	200	98.7	90	110	
121	Sb	115	189.219	1380867	0.80	200	94.6	90	110	
137	Ba	115	185.924	445059	1.01	200	93.0	90	110	
205	Tl	209	190.721	5329710	0.31	200	95.4	90	110	
208	Pb	209	193.770	7192734	0.68	200	96.9	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1028449	1.15	1141841	90.07	70	120	
72	Ge	770047	0.42	848746	90.73	70	120	
115	In	8593860	0.62	9174766	93.67	70	120	
209	Bi	17906825	1.10	18816731	95.16	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	6/5/2014 15:17	Sample Name	LCVL7-140402
Data Batch	140605.b	Comment	LCVLICPMS_TW
Data File Name	168LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.754	37	27.59	1	75.4	70	130	
11	B	45	31.474	851	12.04	20	157.4	70	130	Fail
23	Na	45	212.321	150276	1.17	100	212.3	70	130	Fail
24	Mg	45	113.234	36863	1.33	100	113.2	70	130	
27	Al	45	95.192	17207	1.69	100	95.2	70	130	
39	K	45	97.659	88268	1.32	100	97.7	70	130	
44	Ca	45	125.715	3258	2.47	100	125.7	70	130	
47	Ti	45	5.089	729	8.94	5	101.8	70	130	
51	V	45	1.120	7692	2.68	1	112.0	70	130	
52	Cr	45	4.731	25972	1.42	5	94.6	70	130	
55	Mn	45	5.454	19550	2.53	5	109.1	70	130	
56	Fe	45	89.462	451732	1.12	100	89.5	70	130	
59	Co	72	4.971	37478	0.87	5	99.4	70	130	
60	Ni	72	5.062	10430	1.54	5	101.2	70	130	
63	Cu	72	5.081	28226	0.79	5	101.6	70	130	
66	Zn	72	4.799	6247	4.87	5	96.0	70	130	
75	As	72	4.539	4539	1.67	5	90.8	70	130	
78	Se	72	4.692	426	3.93	5	93.8	70	130	
88	Sr	115	4.866	28271	1.27	5	97.3	70	130	
95	Mo	115	4.429	16257	2.62	5	88.6	70	130	
107	Ag	115	1.748	20116	4.07	2	87.4	70	130	
111	Cd	115	0.993	2018	2.80	1	99.3	70	130	
118	Sn	115	4.864	22566	0.35	5	97.3	70	130	
121	Sb	115	1.699	12864	2.08	2	84.9	70	130	
137	Ba	115	4.647	11383	1.05	5	92.9	70	130	
205	Tl	209	0.947	27286	2.44	1	94.7	70	130	
208	Pb	209	0.951	39702	0.16	1	95.1	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1044373	0.50	1141841	91.46	70	120	
72	Ge	779411	0.50	848746	91.83	70	120	
115	In	8734734	1.56	9174766	95.20	70	120	
209	Bi	18078811	0.49	18816731	96.08	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	6/5/2014 15:21	Sample Name	CCB7-140402
Data Batch	140605.b	Comment	CCB ICPMS_TW
Data File Name	170_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	-0.039	1	173.2	0.4	0.3	
11	B	45	12.118	420	9.6	10	10	FailAq FailSoil
23	Na	45	76.097	69049	1.2	50	100	FailSoil
24	Mg	45	2.134	1318	5.1	50	100	
27	Al	45	-0.258	487	14.8	50	10	
39	K	45	-3.548	47816	0.7	50	100	
44	Ca	45	3.104	408	19.5	50	100	
47	Ti	45	0.009	3	173.2	4	3	
51	V	45	0.164	3542	2.6	4	3	
52	Cr	45	-0.219	1127	2.3	2	2	
55	Mn	45	0.338	1477	3.4	2	3	
56	Fe	45	-0.595	7986	2.2	50	50	
59	Co	72	0.007	204	17.1	2	3	
60	Ni	72	-0.150	252	12.0	2	3	
63	Cu	72	-0.033	1229	3.2	2	2	
66	Zn	72	-0.290	213	6.3	4	2	
75	As	72	0.028	204	10.7	2	2	
78	Se	72	0.021	76	12.3	1	2	
88	Sr	115	0.077	678	10.4	4	3	
95	Mo	115	0.014	80	0.0	2	2	
107	Ag	115	0.021	278	15.2	0.4	1	
111	Cd	115	0.001	36	23.6	0.4	0.3	
118	Sn	115	-0.063	577	15.1	4	3	
121	Sb	115	-0.010	197	21.2	2	0.8	
137	Ba	115	0.003	88	23.2	2	3	
205	Tl	209	0.010	852	4.9	2	0.5	
208	Pb	209	-0.015	3518	6.6	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1044960	0.54	1141841	91.52	70	120	
72	Ge	771260	0.38	848746	90.87	70	120	
115	In	8573618	0.64	9174766	93.45	70	120	
209	Bi	17986601	1.51	18816731	95.59	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	6/5/2014 15:33	Sample Name	CCV8-140402
Data Batch	140605.b	Comment	CCV ICPMS_TW
Data File Name	176_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	172.871	8214	0.83	200	86.4	90	110	Fail
11	B	45	246.642	5914	3.50	200	123.3	90	110	Fail
23	Na	45	4456.762	2806996	2.02	5000	89.1	90	110	Fail
24	Mg	45	4441.113	1487617	3.00	5000	88.8	90	110	Fail
27	Al	45	4719.810	865696	0.69	5000	94.4	90	110	
39	K	45	4493.336	1931859	1.19	5000	89.9	90	110	Fail
44	Ca	45	4483.254	109422	1.24	5000	89.7	90	110	Fail
47	Ti	45	202.780	30318	1.47	200	101.4	90	110	
51	V	45	188.055	857917	0.58	200	94.0	90	110	
52	Cr	45	189.064	995382	0.51	200	94.5	90	110	
55	Mn	45	186.026	687957	0.61	200	93.0	90	110	
56	Fe	45	4915.232	25354430	0.93	5000	98.3	90	110	
59	Co	72	202.097	1574040	0.65	200	101.0	90	110	
60	Ni	72	196.201	397805	0.68	200	98.1	90	110	
63	Cu	72	195.395	1070511	1.04	200	97.7	90	110	
66	Zn	72	185.532	228624	0.78	200	92.8	90	110	
75	As	72	181.020	180481	0.45	200	90.5	90	110	
78	Se	72	195.542	15270	0.22	200	97.8	90	110	
88	Sr	115	195.036	1183243	0.27	200	97.5	90	110	
95	Mo	115	190.114	733587	0.21	200	95.1	90	110	
107	Ag	115	197.844	2392303	0.91	200	98.9	90	110	
111	Cd	115	179.401	377847	0.73	200	89.7	90	110	Fail
118	Sn	115	195.173	918077	0.34	200	97.6	90	110	
121	Sb	115	188.450	1472035	1.28	200	94.2	90	110	
137	Ba	115	181.777	465772	1.20	200	90.9	90	110	
205	Tl	209	189.235	5583761	1.63	200	94.6	90	110	
208	Pb	209	191.643	7511631	0.75	200	95.8	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1092900	1.11	1141841	95.71	70	120	
72	Ge	808306	0.52	848746	95.24	70	120	
115	In	9200785	1.34	9174766	100.28	70	120	
209	Bi	18908169	0.78	18816731	100.49	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	6/5/2014 15:37	Sample Name	LCVL8-140402
Data Batch	140605.b	Comment	LCVLICPMS_TW
Data File Name	178LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.724	37	16.44	1	72.4	70	130	
11	B	45	44.052	1187	5.48	20	220.3	70	130	Fail
23	Na	45	175.937	134839	0.82	100	175.9	70	130	Fail
24	Mg	45	106.737	36482	1.17	100	106.7	70	130	
27	Al	45	88.696	16851	1.48	100	88.7	70	130	
39	K	45	95.450	91643	0.96	100	95.5	70	130	
44	Ca	45	114.232	3136	4.41	100	114.2	70	130	
47	Ti	45	5.206	782	2.99	5	104.1	70	130	
51	V	45	1.186	8373	3.44	1	118.6	70	130	
52	Cr	45	4.627	26687	2.37	5	92.5	70	130	
55	Mn	45	4.857	18290	1.47	5	97.1	70	130	
56	Fe	45	87.828	465280	1.49	100	87.8	70	130	
59	Co	72	4.910	38468	1.08	5	98.2	70	130	
60	Ni	72	5.026	10765	3.83	5	100.5	70	130	
63	Cu	72	5.098	29422	0.59	5	102.0	70	130	
66	Zn	72	4.446	6057	3.33	5	88.9	70	130	
75	As	72	4.490	4667	2.11	5	89.8	70	130	
78	Se	72	4.960	464	11.75	5	99.2	70	130	
88	Sr	115	4.764	29048	1.32	5	95.3	70	130	
95	Mo	115	4.402	16948	1.81	5	88.0	70	130	
107	Ag	115	1.693	20447	1.16	2	84.7	70	130	
111	Cd	115	0.894	1911	2.66	1	89.4	70	130	
118	Sn	115	4.648	22672	0.17	5	93.0	70	130	
121	Sb	115	1.594	12686	0.70	2	79.7	70	130	
137	Ba	115	4.504	11586	2.70	5	90.1	70	130	
205	Tl	209	0.923	27417	0.80	1	92.3	70	130	
208	Pb	209	0.954	41048	0.56	1	95.4	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1095337	1.17	1141841	95.93	70	120	
72	Ge	809884	0.27	848746	95.42	70	120	
115	In	9166642	2.03	9174766	99.91	70	120	
209	Bi	18637646	1.55	18816731	99.05	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	6/5/2014 15:39	Sample Name	CCB8-140402
Data Batch	140605.b	Comment	CCB ICPMS_TW
Data File Name	179_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	-0.019	2	91.7	0.4	0.3	
11	B	45	18.834	597	7.3	10	10	FailAq FailSoil
23	Na	45	64.937	65334	1.3	50	100	FailSoil
24	Mg	45	1.275	1091	9.8	50	100	
27	Al	45	-0.348	493	10.6	50	10	
39	K	45	-4.869	49524	0.7	50	100	
44	Ca	45	2.677	417	1.4	50	100	
47	Ti	45	0.023	6	34.7	4	3	
51	V	45	0.267	4182	2.2	4	3	
52	Cr	45	-0.221	1169	6.9	2	2	
55	Mn	45	0.169	920	8.6	2	3	
56	Fe	45	-0.631	8181	0.9	50	50	
59	Co	72	-0.003	130	11.2	2	3	
60	Ni	72	-0.154	256	22.7	2	3	
63	Cu	72	-0.047	1212	7.3	2	2	
66	Zn	72	-0.284	231	12.9	4	2	
75	As	72	0.028	214	3.8	2	2	
78	Se	72	0.236	96	8.9	1	2	
88	Sr	115	0.075	699	10.8	4	3	
95	Mo	115	0.011	73	9.1	2	2	
107	Ag	115	0.016	238	9.3	0.4	1	
111	Cd	115	-0.005	26	39.8	0.4	0.3	
118	Sn	115	-0.071	570	4.2	4	3	
121	Sb	115	-0.021	121	11.5	2	0.8	
137	Ba	115	0.001	87	16.8	2	3	
205	Tl	209	0.012	927	13.7	2	0.5	
208	Pb	209	-0.015	3600	1.8	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1094360	0.87	1141841	95.84	70	120	
72	Ge	808062	0.43	848746	95.21	70	120	
115	In	9009176	0.53	9174766	98.20	70	120	
209	Bi	18460848	0.92	18816731	98.11	70	120	

ECS Environmental Chemistry Services

PO Box 79782 Houston, TX 77279♦Voice/Fax:(713) 935-0222♦ecschem@sbcglobal.net

To: Ben Camacho, Project Manager, Daniel B. Stephens & Associates, Inc.

From: Nan Toole, ECS Environmental Chemistry Services

Date: 08/08/2014

Re: Data Review Memorandum, Rockwool Industries, Inc. Federal Superfund Site, Groundwater Sampling Event, July 2014

This Data Review Memorandum summarizes the results of the data review conducted for samples collected during July 2014 from the Rockwool Industries, Inc. Federal Superfund Site. ECS Environmental Chemistry Services (ECS) reviewed chemical data analyzed by DHL Analytical in Round Rock, Texas. The following data are covered by this memo:

DATA PACKAGE	LAB SAMPLE ID	FIELD SAMPLE ID	DATE COLL.	MEDIA	PARAMETER
1407278	1407278-01	MW-22	07/22/2014	Aqueous	MET
	1407278-02	MW-37-90	07/22/2014	Aqueous	MET
	1407278-03	MW-21	07/22/2014	Aqueous	MET
	1407278-04	MW-38-90	07/22/2014	Aqueous	MET
	1407278-05	MW-35-90	07/22/2014	Aqueous	MET
	1407278-06	MW-10	07/22/2014	Aqueous	MET
	1407278-07	MW-30-90	07/22/2014	Aqueous	MET
	1407278-08	MW-29-90	07/22/2014	Aqueous	MET
	1407278-09	MW-17	07/22/2014	Aqueous	MET
	1407278-10	MW-33-90	07/22/2014	Aqueous	MET
	1407278-11	MW-34-90	07/22/2014	Aqueous	MET
	1407278-12	DUP-1	07/22/2014	Aqueous	MET
	1407278-13	DUP-2	07/22/2014	Aqueous	MET
	1407278-14	ER-1	07/22/2014	Aqueous	MET
	1407278-15	MW-20	07/22/2014	Aqueous	MET
	1407278-16	MW-11	07/22/2014	Aqueous	MET
	1407278-17	MW-14	07/22/2014	Aqueous	MET
	1407278-18	MW-7	07/22/2014	Aqueous	MET
	1407278-19	MW-19	07/22/2014	Aqueous	MET
	1407278-20	MW-24-90	07/22/2014	Aqueous	MET
	1407278-21	MW-18	07/22/2014	Aqueous	MET
	1407278-22	MW-27-90	07/22/2014	Aqueous	MET
	1407278-23	MW-28-90	07/22/2014	Aqueous	MET
	1407278-24	MW-9	07/22/2014	Aqueous	MET

MET=ICP/MS metals (antimony, arsenic, lead) by EPA Method 6020A

Analytical data were evaluated for conformance to the requirements of Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW-846) and the TCEQ Quality Assurance Project Plan (QAPP) for the Federal Superfund Program (Revision 10.0, QTRAK#13-462).

The purpose of this sampling event was to compare assess groundwater constituent concentrations. The technical data review resulted in no significant quality control anomalies, no rejected data and no corrective actions taken or recommended for future analyses.

The Data Review Results are provided in the following attachment.

ECS Environmental Chemistry Services

PO Box 79782 Houston, TX 77279♦Voice/Fax:(713) 935-0222♦ecschem@sbcglobal.net

Data Review Results Attachment

ECS Environmental Chemistry Services

PO Box 79782 Houston, TX 77279♦Voice/Fax:(713) 935-0222♦ecschem@sbcglobal.net

Data Review Results

Items identified in the Laboratory Review Checklist (LRC) as outside of control limits for laboratory performance criteria were evaluated for the data packages covered by this report. The evaluation of the sample specific items is covered below. All samples were received in good condition. A copy of the original Chain-of-Custody (C-O-C) and airbill receipt were present in the data packages. The data package included all requested analyses on the C-O-C. The following table summarizes the data review qualifiers that were applied to the data.

METALS

For metals data, the following items are reviewed in this section:

- Holding Time/Preservation Requirements
- Blanks
- Laboratory Control Samples
- Matrix Spikes
- Matrix Spike Duplicates
- Field Duplicates

The following sections specify the reasons for the data validation qualifiers that are presented in Appendix A. The detected lead results in samples 1407278-01, 03-05, 07, 08, and 12 were qualified as estimated with UJI-DL qualifiers based on out of control serial dilution results.

Holding Time/Preservation Requirements

The maximum holding time from date of collection to date of analysis for metals in aqueous and soil matrix samples is 180 days. This holding time was met for all of the samples in this data set. None of the metals data were qualified based on holding times.

Blanks

All associated blanks were free of any reportable concentration for all reported analytes above SDLs. None of the metals data were qualified based on blank data.

Laboratory Control Samples (LCS)

The LCS review criteria for metals data are as follows:

ACCURACY (%R)	PRECISION (RELATIVE PERCENT DIFFERENCE)
70%-130%	30%

One LCS was analyzed with each analytical batch. These criteria were met for all the samples in this data set. None of the metals data were qualified based on LCS data.

ECS Environmental Chemistry Services

PO Box 79782 Houston, TX 77279♦Voice/Fax:(713) 935-0222♦ecschem@sbcglobal.net

Matrix Spikes

The matrix spike review criteria for metals data are as follows:

ACCURACY (%R)
70%-130%

One MS was analyzed with every analytical batch. These criteria were met for all the samples in this data set. None of the metals data were qualified based on matrix spike duplicate results.

Matrix Spike Duplicates

The matrix spike duplicate review criteria for metals data are as follows:

PRECISION (RELATIVE PERCENT DIFFERENCE)	DIFFERENCE
30%	+ OR- SDL*

One duplicate was analyzed with every analytical batch. These criteria were met for all the samples in this data set. None of the metals data were qualified based on duplicate data.

Field Duplicates

For aqueous matrix samples, when both the original and duplicate result are greater than 5 times the MQL, the RPD was equal to or less than 30%. For aqueous matrix samples, when one or both of the original and duplicate results are less than 5 times the MQL, the results agree within 2 times the greater SDL. The results of this evaluation of all detected results are shown in the following table:

SDG	FIELD DUP ID	ANALYTE	ORIG. RESULT	DUP. RESULT	QC RESULT	CRITERIA
1407278	1407278-05/12	Antimony	0.524	0.516	RPD:2%	<=30%
		Arsenic	0.0826	0.0835	RPD:1%	<=30%
		Lead	0.00157	0.00169	DIF:0.00012	<=0.00060
	1407278-11/13	Antimony	0.314	0.318	RPD:1%	<=30%
		Arsenic	0.433	0.424	RPD:2%	<=30%

None of the metal data required qualification based on field duplicate results because data review criteria were met.

ECS Environmental Chemistry Services

PO Box 79782 Houston, TX 77279♦Voice/Fax:(713) 935-0222♦ecschem@sbcglobal.net

APPENDIX A

QUALIFIED ANALYTICAL DATA

DHL ANALYTICAL

August 05, 2014

Paul Kirby
D. B. Stephens & Assoc, Inc.
4030 W Braker #325
Austin, Texas 78759
TEL: (512) 821-2765
FAX

Order No.: 1407278

RE: Rockwool Belton, TX

Dear Paul Kirby:

DHL Analytical, Inc. received 24 sample(s) on 7/23/2014 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-13-11

ACCREDITED IN ACCORDANCE WITH nelac

Table of Contents

DHL ANALYTICAL

2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

Nº 62645

CHAIN-OF-CUSTODY

CLIENT: DBSA
ADDRESS: 4030 west Braker lane Ste 325 Austin Tx
PHONE: 512-821-2765 FAX/E-MAIL: bcamacho@dbstephens.com
DATA REPORTED TO: Ben Camacho bcamacho@dbstephens.com
ADDITIONAL REPORT COPIES TO: invoice to esmith@dbstephens.com

DATE: 7/22/14 PAGE 1 OF 2
PO #: ~~0~~ 015593 DHL WORK ORDER #: ~~[illegible]~~ 1407278
PROJECT LOCATION OR NAME: Rockwool, Belton Tx
CLIENT PROJECT #: ES14.A1R0.12 COLLECTOR: Ben Camacho

Authorize 5% surcharge for TRRP Report? ☐ Yes ☒ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID

ANALYSES: BTEX ☐ MTBE ☐ [METHOD 8021] · TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ · GRO [METHOD 8015] ☐ DRO [METHOD 8015] ☐ · VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ · SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ · 8081 PEST ☐ 608 PEST/PCB ☐ 8270 PEST ☐ · 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ · 8321 HERB ☐ 8330 EXPL ☐ PERCHLORATE ☐ · METALS 6020 ☒ METALS 200.8 ☐ DISS. METALS ☐ · RCRA ☐ TX11 ☐ · PH ☐ HEX CHROM ☐ ALKALINITY ☐ · CHLORIDE ☐ ANIONS · TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ · TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ · RCI ☐ TOX ☐ FLASHPOINT ☐ · TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO3	H2SO4 ☐ NaOH ☐	ICE	UNPRESERVED	METALS 6020	FIELD NOTES
MW-22	01	7/22/14	945	W	250mL	1		X		X		X	
MW-37-90	02	7/22/14	1025	W	250mL	1		X		X		X	
MW-21	03	7/22/14	1100	W	250mL	3		X		X		X	Matrix Spike/ Matrix Spike dup
MW-38-90	04	7/22/14	1140	W	250mL	1		X		X		X	
MW-35-90	05	7/22/14	1230	W	250mL	1		X		X		X	
MW-10	06	7/22/14	1330	W	250mL	1		X		X		X	
MW-30-90	07	7/22/14	1410	W	250mL	1		X		X		X	
MW-29-90	08	7/22/14	1450	W	250mL	1		X		X		X	
MW-17	09	7/22/14	1530	W	250mL	1		X		X		X	
MW-33-90	10	7/22/14	1610	W	250mL	1		X		X		X	
MW-34-90	11	7/22/14	1700	W	250mL	1		X		X		X	
Dup-1	12	—	—	W	250mL	1		X		X		X	
Dup-2	13	—	—	W	250mL	1		X		X		X	
ER-1	14	7/22/14	1830	W	250mL	1		X		X		X	
TOTAL						16							

RELINQUISHED BY: (Signature) Ben Camacho [signature] DATE/TIME 7/23/14 1517 RECEIVED BY: (Signature) [signature]
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☒ DHL DISPOSAL @ $5.00 each ☐ Return 3

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 2.7/3.6 THERM #: 57
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL #:
☐ APC DELIVERY
☒ HAND DELIVERED

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 62646

CHAIN-OF-CUSTODY

CLIENT: DBSA
ADDRESS: 4030 W. Braker lane Ste 325 Austin TX
PHONE: 512-821-2765 FAX/E-MAIL: bcamacho@dbstephens.com
DATA REPORTED TO: Ben Camacho bCamacho@dbstephens.com
ADDITIONAL REPORT COPIES TO: esmith@dbstephens.com

DATE: 7/22/14 PAGE 2 OF 2
PO #: 019593 DHL WORK ORDER #: 140728
PROJECT LOCATION OR NAME: Rockwool Belton, TX
CLENT PROJECT #: ES14.AIR0,12 COLLECTOR: Ben Camacho

Authorize 5% surcharge for TRRP Report? ☐ Yes ☑ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID

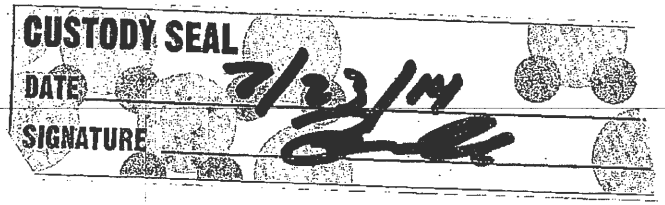
Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: 8260	FIELD NOTES
MW-20	15	7/22/14	1005	W	250mL	1		X		X		X	
MW-11	16	7/22/14	1226	W	250mL	1		X		X		X	
MW-14	17	7/22/14	1325	W	250mL	1		X		X		X	
MW-7	18	7/22/14	1415	W	250mL	1		X		X		X	
MW-19	19	7/22/14	1500	W	250mL	1		X		X		X	
MW-24-90	20	7/22/14	1520	W	250mL	1		X		X		X	
MW-18	21	7/22/14	1603	W	250mL	1		X		X		X	
MW-27-90	22	7/22/14	1625	W	250mL	1		X		X		X	
MW-28-90	23	7/22/14	1655	W	250mL	1		X		X		X	
MW-9	24	7/22/14	1116	W	250mL	1		X		X		X	
TOTAL						10							

RELINQUISHED BY: (Signature) Ben Camacho DATE/TIME 7/23/14 15:47 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☒ DHL DISPOSAL @ $5.00 each ☐ Return 4

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 2.7/3.6 THERM #: 57
CUSTODY SEALS: ☐ BROKEN ☑ INTACT ☐ NOT USED
☐ CARRIER BILL #: _____
☐ APC DELIVERY
☑ HAND DELIVERED


CUSTODY SEAL
DATE 7/23/14
SIGNATURE


QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900


CUSTODY SEAL
DATE 7/23/14
SIGNATURE


QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name D. B. Stephens & Assoc, Inc. Date Received: 7/23/2014

Work Order Number 1407278 Received by MD

Checklist completed by: _____ 7/23/2014 Reviewed by _____ 7/23/2014
Signature Date Initials Date

Carrier name Hand Delivered

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	2.7 °C, 3.1e
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 8086
	Adjusted? ND		Checked by ⊃
Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted? _____		Checked by _____

Any No response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

DHL Analytical, Inc.
Laboratory Review Checklist: Reportable Data

Project Name: Rockwool Belton, TX	**Date:** 8/5/14
Reviewer Name: Carlos Castro	**Laboratory Work Order:** 1407278
Prep Batch Number(s): See Prep Dates Report	**Run Batch:** See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-Custody (C-O-C)					
R1	OI	1) Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				R1-01
		2) Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and Quality Control (QC) Identification**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test Reports**					
		1) Were all samples prepared and analyzed within holding times?	X				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		3) Were calculations checked by a peer or supervisor?	X				
		4) Were all analyte identifications checked by a peer or supervisor?	X				
		5) Were sample detection limits reported for all analytes not detected?	X				
		6) Were all results for soil and sediment samples reported on a dry weight basis?			X		
		7) Were % moisture (or solids) reported for all soil and sediment samples?			X		
		8) Were bulk soils/solids samples for volatile analysis extracted with methanol per EPA Method 5035?			X		
		9) If required for the project, TICs reported?			X		
R4	O	**Surrogate Recovery Data**					
		1) Were surrogates added prior to extraction?			X		
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		1) Were appropriate type(s) of blanks analyzed?	X				
		2) Were blanks analyzed at the appropriate frequency?	X				
		3) Where method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		4) Were blank concentrations < MQL?	X				
R6	OI	**Laboratory Control Samples (LCS):**					
		1) Were all COCs included in the LCS?	X				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		3) Were LCSs analyzed at the required frequency?	X				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		6) Was the LCSD RPD within QC limits (if applicable)?	X				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Data**					
		1) Were the project/method specified analytes included in the MS and MSD?	X				
		2) Were MS/MSD analyzed at the appropriate frequency?	X				
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		4) Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?			X		
		2) Were analytical duplicates analyzed at the appropriate frequency?			X		
		3) Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	X				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		3) Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		3) Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

DHL Analytical, Inc.
Laboratory Review Checklist (continued): Supporting Data

Project Name: Rockwool Belton, TX	**Date:** 8/5/14
Reviewer Name: Carlos Castro	**Laboratory Work Order:** 1407278

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within QC limits?	X				
		2) Were percent RSDs or correlation coefficient criteria met?	X				
		3) Was the number of standards recommended in the method used for all analytes?	X				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		5) Are ICAL data available for all instruments used?	X				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and Continuing calibration Verification (ICCV and CCV) and Continuing Calibration blank (CCB):**					
		1) Was the CCV analyzed at the method-required frequency?	X				
		2) Were percent differences for each analyte within the method-required QC limits?	X				
		3) Was the ICAL curve verified for each analyte?	X				
		4) Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	**Mass Spectral Tuning:**					
		1) Was the appropriate compound for the method used for tuning?	X				
		2) Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal Standards (IS):**					
		1) Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw Data (NELAC Section 5.5.10)**					
		1) Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		2) Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual Column Confirmation**					
		1) Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively Identified Compounds (TICs):**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) Results:**					
		1) Were percent recoveries within method QC limits?	X				
S9	I	**Serial Dilutions, Post Digestion Spikes, and Method of Standard Additions**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?		X			S9-01
S10	OI	**Method Detection Limit (MDL) Studies**					
		1) Was a MDL study performed for each reported analyte?	X				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency Test Reports:**					
		1) Was the lab's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards Documentation**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/Analyte Identification Procedures**					
		1) Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5 – Appendix C?	X				
		2) Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/Validation Documentation for Methods** (NELAC Chapter 5)					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory Standard Operating Procedures (SOPs):**					
		1) Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Data Package Signature Page – RG-366/TRRP-13

This data package consists of:

This signature page, the laboratory review checklist, and the following reportable data:

- R1 Field chain-of-custody documentation;
- R2 Sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC Chapter 5,
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- R4 Surrogate recovery data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - c) The laboratory's LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a) The amount of analyte measured in the duplicate,
  - b) The calculated RPD, and
  - c) The laboratory's QC limits for analytical duplicates.
- R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;
- R10 Other problems or anomalies.

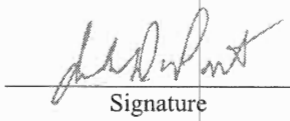
The Exception Report for every "No" or "Not Reviewed (NR)" item in Laboratory Review checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information or data affecting the quality of the data has been knowingly withheld.

This laboratory was last inspected by TCEQ on May 6-10, 2013. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

John DuPont – General Manager

Scott Schroeder – Technical Director



Signature

08/05/14

Date

DHL Analytical, Inc. **Date:** *05-Aug-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Belton, TX
Lab Order: 1407278

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Method SW6020A - Metals Analysis

Exception Report R1-01

The samples were received and log-in performed on 7/23/14. A total of 24 samples were received. The samples arrived in good condition and were properly packaged.

Exception Report S9-01

For Metals analysis performed on 8/1/14 (batch 64976) the RPD for the serial dilution was slightly above control limits for Lead. This is flagged accordingly in the QC summary report. The PDS was within control limits for this analyte. No further corrective actions were taken.

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Belton, TX
Lab Order: 1407278

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1407278-01	MW-22		07/22/14 09:45 AM	7/23/2014
1407278-02	MW-37-90		07/22/14 10:25 AM	7/23/2014
1407278-03	MW-21		07/22/14 11:00 AM	7/23/2014
1407278-04	MW-38-90		07/22/14 11:40 AM	7/23/2014
1407278-05	MW-35-90		07/22/14 12:30 PM	7/23/2014
1407278-06	MW10		07/22/14 01:30 PM	7/23/2014
1407278-07	MW-30-90		07/22/14 02:10 PM	7/23/2014
1407278-08	MW-29-90		07/22/14 02:50 PM	7/23/2014
1407278-09	MW-17		07/22/14 03:30 PM	7/23/2014
1407278-10	MW-33-90		07/22/14 04:10 PM	7/23/2014
1407278-11	MW-34-90		07/22/14 05:00 PM	7/23/2014
1407278-12	DUP-1		07/22/14	7/23/2014
1407278-13	DUP-2		07/22/14	7/23/2014
1407278-14	ER-1		07/22/14 06:30 PM	7/23/2014
1407278-15	MW-20		07/22/14 10:05 AM	7/23/2014
1407278-16	MW-11		07/22/14 12:26 PM	7/23/2014
1407278-17	MW-14		07/22/14 01:25 PM	7/23/2014
1407278-18	MW-7		07/22/14 02:15 PM	7/23/2014
1407278-19	MW-19		07/22/14 03:00 PM	7/23/2014
1407278-20	MW-24-90		07/22/14 03:20 PM	7/23/2014
1407278-21	MW-18		07/22/14 04:03 PM	7/23/2014
1407278-22	MW-27-90		07/22/14 04:25 PM	7/23/2014
1407278-23	MW-28-90		07/22/14 04:55 PM	7/23/2014
1407278-24	MW-9		07/22/14 11:16 AM	7/23/2014

Lab Order: 1407278
Client: D. B. Stephens & Assoc, Inc.
Project: Rockwool Belton, TX

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1407278-01A	MW-22	07/22/14 09:45 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-02A	MW-37-90	07/22/14 10:25 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-03A	MW-21	07/22/14 11:00 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-04A	MW-38-90	07/22/14 11:40 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-05A	MW-35-90	07/22/14 12:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
	MW-35-90	07/22/14 12:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-06A	MW10	07/22/14 01:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-07A	MW-30-90	07/22/14 02:10 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-08A	MW-29-90	07/22/14 02:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-09A	MW-17	07/22/14 03:30 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-10A	MW-33-90	07/22/14 04:10 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-11A	MW-34-90	07/22/14 05:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-12A	DUP-1	07/22/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
	DUP-1	07/22/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-13A	DUP-2	07/22/14	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/01/14 08:00 AM	64976
1407278-14A	ER-1	07/22/14 06:30 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	07/30/14 09:59 AM	64943
1407278-15A	MW-20	07/22/14 10:05 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/30/14 09:59 AM	64943
1407278-16A	MW-11	07/22/14 12:26 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/30/14 09:59 AM	64943
1407278-17A	MW-14	07/22/14 01:25 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/30/14 09:59 AM	64943
1407278-18A	MW-7	07/22/14 02:15 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/30/14 09:59 AM	64943
1407278-19A	MW-19	07/22/14 03:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/30/14 09:59 AM	64943
1407278-20A	MW-24-90	07/22/14 03:20 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/30/14 09:59 AM	64943
1407278-21A	MW-18	07/22/14 04:03 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/30/14 09:59 AM	64943
1407278-22A	MW-27-90	07/22/14 04:25 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/30/14 09:59 AM	64943
1407278-23A	MW-28-90	07/22/14 04:55 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/30/14 09:59 AM	64943
1407278-24A	MW-9	07/22/14 11:16 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/30/14 09:59 AM	64943

Lab Order: 1407278
Client: D. B. Stephens & Assoc, Inc.
Project: Rockwool Belton, TX

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1407278-01A	MW-22	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 09:00 PM	ICP-MS3_140801A
1407278-02A	MW-37-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 09:06 PM	ICP-MS3_140801A
1407278-03A	MW-21	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 08:48 PM	ICP-MS3_140801A
1407278-04A	MW-38-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 09:12 PM	ICP-MS3_140801A
1407278-05A	MW-35-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 09:19 PM	ICP-MS3_140801A
	MW-35-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	10	08/04/14 02:28 PM	ICP-MS3_140804B
1407278-06A	MW10	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 09:25 PM	ICP-MS3_140801A
1407278-07A	MW-30-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 09:31 PM	ICP-MS3_140801A
1407278-08A	MW-29-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 09:37 PM	ICP-MS3_140801A
1407278-09A	MW-17	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 09:43 PM	ICP-MS3_140801A
1407278-10A	MW-33-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 09:49 PM	ICP-MS3_140801A
1407278-11A	MW-34-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 11:38 PM	ICP-MS3_140801A
1407278-12A	DUP-1	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	10	08/04/14 02:34 PM	ICP-MS3_140804B
	DUP-1	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 11:44 PM	ICP-MS3_140801A
1407278-13A	DUP-2	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64976	1	08/01/14 11:50 PM	ICP-MS3_140801A
1407278-14A	ER-1	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	64943	1	08/01/14 12:33 PM	ICP-MS4_140801A
1407278-15A	MW-20	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64943	1	08/01/14 12:35 PM	ICP-MS4_140801A
1407278-16A	MW-11	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64943	1	08/01/14 12:37 PM	ICP-MS4_140801A
1407278-17A	MW-14	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64943	1	08/01/14 01:04 PM	ICP-MS4_140801A
1407278-18A	MW-7	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64943	1	08/01/14 01:06 PM	ICP-MS4_140801A
1407278-19A	MW-19	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64943	1	08/01/14 01:08 PM	ICP-MS4_140801A
1407278-20A	MW-24-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64943	1	08/01/14 01:10 PM	ICP-MS4_140801A
1407278-21A	MW-18	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64943	1	08/01/14 01:12 PM	ICP-MS4_140801A
1407278-22A	MW-27-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64943	1	08/01/14 01:13 PM	ICP-MS4_140801A
1407278-23A	MW-28-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64943	1	08/01/14 01:15 PM	ICP-MS4_140801A
1407278-24A	MW-9	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	64943	1	08/01/14 01:17 PM	ICP-MS4_140801A

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-22
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-01
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 09:45 AM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.00188	0.000800	0.00250	J	mg/L	1	08/01/14 09:00 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	08/01/14 09:00 PM
Lead J1 - DL	0.000573	0.000300	0.00100	J	mg/L	1	08/01/14 09:00 PM
IS: Bismuth	89.8	0	70-200		%REC	1	08/01/14 09:00 PM
IS: Germanium	106	0	70-200		%REC	1	08/01/14 09:00 PM
IS: Indium	95.7	0	70-200		%REC	1	08/01/14 09:00 PM

MK1 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-37-90
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-02
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 10:25 AM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.00116	0.000800	0.00250	J	mg/L	1	08/01/14 09:06 PM
Arsenic	0.0118	0.00200	0.00500		mg/L	1	08/01/14 09:06 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	08/01/14 09:06 PM
IS: Bismuth	91.3	0	70-200		%REC	1	08/01/14 09:06 PM
IS: Germanium	108	0	70-200		%REC	1	08/01/14 09:06 PM
IS: Indium	96.5	0	70-200		%REC	1	08/01/14 09:06 PM

MC 8.8.14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-21
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-03
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 11:00 AM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.218	0.000800	0.00250		mg/L	1	08/01/14 08:48 PM
Arsenic	0.00778	0.00200	0.00500		mg/L	1	08/01/14 08:48 PM
Lead J1-DL	0.00161	0.000300	0.00100		mg/L	1	08/01/14 08:48 PM
IS: Bismuth	92.4	0	70-200		%REC	1	08/01/14 08:48 PM
IS: Germanium	108	0	70-200		%REC	1	08/01/14 08:48 PM
IS: Indium	98.0	0	70-200		%REC	1	08/01/14 08:48 PM

NKT 8.8.14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-38-90
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-04
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 11:40 AM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.303	0.000800	0.00250		mg/L	1	08/01/14 09:12 PM
Arsenic	0.00737	0.00200	0.00500		mg/L	1	08/01/14 09:12 PM
Lead J1 - DL	0.000703	0.000300	0.00100	J	mg/L	1	08/01/14 09:12 PM
IS: Bismuth	89.5	0	70-200		%REC	1	08/01/14 09:12 PM
IS: Germanium	105	0	70-200		%REC	1	08/01/14 09:12 PM
IS: Indium	94.8	0	70-200		%REC	1	08/01/14 09:12 PM

MK 8.9.14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-35-90
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-05
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 12:30 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.524	0.00800	0.0250		mg/L	10	08/04/14 02:28 PM
Arsenic	0.0826	0.00200	0.00500		mg/L	1	08/01/14 09:19 PM
Lead J1-DL	0.00157	0.000300	0.00100		mg/L	1	08/01/14 09:19 PM
IS: Bismuth	86.3	0	70-200		%REC	1	08/01/14 09:19 PM
IS: Germanium	104	0	70-200		%REC	1	08/01/14 09:19 PM
IS: Indium	94.8	0	70-200		%REC	10	08/04/14 02:28 PM

NKT 8.8.14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW10
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-06
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 01:30 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.000924	0.000800	0.00250	J	mg/L	1	08/01/14 09:25 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	08/01/14 09:25 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	08/01/14 09:25 PM
IS: Bismuth	92.1	0	70-200		%REC	1	08/01/14 09:25 PM
IS: Germanium	108	0	70-200		%REC	1	08/01/14 09:25 PM
IS: Indium	97.2	0	70-200		%REC	1	08/01/14 09:25 PM

KT 8.8.14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-30-90
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-07
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 02:10 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.00152	0.000800	0.00250	J	mg/L	1	08/01/14 09:31 PM
Arsenic	0.00372	0.00200	0.00500	J	mg/L	1	08/01/14 09:31 PM
Lead J1-DL	0.0107	0.000300	0.00100		mg/L	1	08/01/14 09:31 PM
IS: Bismuth	86.0	0	70-200		%REC	1	08/01/14 09:31 PM
IS: Germanium	101	0	70-200		%REC	1	08/01/14 09:31 PM
IS: Indium	91.6	0	70-200		%REC	1	08/01/14 09:31 PM

MK 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-29-90
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-08
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 02:50 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.0274	0.000800	0.00250		mg/L	1	08/01/14 09:37 PM
Arsenic	0.00763	0.00200	0.00500		mg/L	1	08/01/14 09:37 PM
Lead J1-DL	0.00235	0.000300	0.00100		mg/L	1	08/01/14 09:37 PM
IS: Bismuth	85.2	0	70-200		%REC	1	08/01/14 09:37 PM
IS: Germanium	99.4	0	70-200		%REC	1	08/01/14 09:37 PM
IS: Indium	89.6	0	70-200		%REC	1	08/01/14 09:37 PM

NK 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-17
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-09
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 03:30 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.0354	0.000800	0.00250		mg/L	1	08/01/14 09:43 PM
Arsenic	0.0137	0.00200	0.00500		mg/L	1	08/01/14 09:43 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	08/01/14 09:43 PM
IS: Bismuth	88.9	0	70-200		%REC	1	08/01/14 09:43 PM
IS: Germanium	102	0	70-200		%REC	1	08/01/14 09:43 PM
IS: Indium	93.7	0	70-200		%REC	1	08/01/14 09:43 PM

MKT
8-8-14

Qualifiers:

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-33-90
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-10
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 04:10 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.140	0.000800	0.00250		mg/L	1	08/01/14 09:49 PM
Arsenic	0.0260	0.00200	0.00500		mg/L	1	08/01/14 09:49 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	08/01/14 09:49 PM
IS: Bismuth	91.0	0	70-200		%REC	1	08/01/14 09:49 PM
IS: Germanium	103	0	70-200		%REC	1	08/01/14 09:49 PM
IS: Indium	95.8	0	70-200		%REC	1	08/01/14 09:49 PM

NKT 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-34-90
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-11
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 05:00 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.314	0.000800	0.00250		mg/L	1	08/01/14 11:38 PM
Arsenic	0.433	0.00200	0.00500		mg/L	1	08/01/14 11:38 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	08/01/14 11:38 PM
IS: Bismuth	87.8	0	70-200		%REC	1	08/01/14 11:38 PM
IS: Germanium	103	0	70-200		%REC	1	08/01/14 11:38 PM
IS: Indium	94.0	0	70-200		%REC	1	08/01/14 11:38 PM

NK 8.8.14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	DUP-1
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-12
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.516	0.00800	0.0250		mg/L	10	08/04/14 02:34 PM
Arsenic	0.0835	0.00200	0.00500		mg/L	1	08/01/14 11:44 PM
Lead J1-DL	0.00169	0.000300	0.00100		mg/L	1	08/01/14 11:44 PM
IS: Bismuth	82.9	0	70-200		%REC	1	08/01/14 11:44 PM
IS: Germanium	104	0	70-200		%REC	1	08/01/14 11:44 PM
IS: Indium	94.3	0	70-200		%REC	10	08/04/14 02:34 PM

MK 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	DUP-2
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-13
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **KL**
Antimony	0.318	0.000800	0.00250		mg/L	1	08/01/14 11:50 PM
Arsenic	0.424	0.00200	0.00500		mg/L	1	08/01/14 11:50 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	08/01/14 11:50 PM
IS: Bismuth	85.1	0	70-200		%REC	1	08/01/14 11:50 PM
IS: Germanium	103	0	70-200		%REC	1	08/01/14 11:50 PM
IS: Indium	90.9	0	70-200		%REC	1	08/01/14 11:50 PM

MC 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	ER-1
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-14
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 06:30 PM
Lab Order:	1407278	**Matrix:**	EQUIP BLANK

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **RO**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	08/01/14 12:33 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	08/01/14 12:33 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	08/01/14 12:33 PM
IS: Bismuth	102	0	70-200		%REC	1	08/01/14 12:33 PM
IS: Germanium	95.2	0	70-200		%REC	1	08/01/14 12:33 PM
IS: Indium	98.4	0	70-200		%REC	1	08/01/14 12:33 PM

NKT 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-20
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-15
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 10:05 AM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **RO**
Antimony	<0.000800	0.000800	0.00250		mg/L	1	08/01/14 12:35 PM
Arsenic	0.00254	0.00200	0.00500	J	mg/L	1	08/01/14 12:35 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	08/01/14 12:35 PM
IS: Bismuth	93.3	0	70-200		%REC	1	08/01/14 12:35 PM
IS: Germanium	90.6	0	70-200		%REC	1	08/01/14 12:35 PM
IS: Indium	93.1	0	70-200		%REC	1	08/01/14 12:35 PM

NKT 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-11
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-16
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 12:26 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **RO**
Antimony	0.00168	0.000800	0.00250	J	mg/L	1	08/01/14 12:37 PM
Arsenic	0.00581	0.00200	0.00500		mg/L	1	08/01/14 12:37 PM
Lead	0.00900	0.000300	0.00100		mg/L	1	08/01/14 12:37 PM
IS: Bismuth	93.4	0	70-200		%REC	1	08/01/14 12:37 PM
IS: Germanium	92.6	0	70-200		%REC	1	08/01/14 12:37 PM
IS: Indium	94.1	0	70-200		%REC	1	08/01/14 12:37 PM

MK 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-14
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-17
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 01:25 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **RO**
Antimony	0.00357	0.000800	0.00250		mg/L	1	08/01/14 01:04 PM
Arsenic	0.00230	0.00200	0.00500	J	mg/L	1	08/01/14 01:04 PM
Lead	0.000356	0.000300	0.00100	J	mg/L	1	08/01/14 01:04 PM
IS: Bismuth	91.2	0	70-200		%REC	1	08/01/14 01:04 PM
IS: Germanium	85.8	0	70-200		%REC	1	08/01/14 01:04 PM
IS: Indium	89.3	0	70-200		%REC	1	08/01/14 01:04 PM

MK 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-7
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-18
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 02:15 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **RO**
Antimony	0.00218	0.000800	0.00250	J	mg/L	1	08/01/14 01:06 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	08/01/14 01:06 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	08/01/14 01:06 PM
IS: Bismuth	92.6	0	70-200		%REC	1	08/01/14 01:06 PM
IS: Germanium	87.5	0	70-200		%REC	1	08/01/14 01:06 PM
IS: Indium	90.3	0	70-200		%REC	1	08/01/14 01:06 PM

MK 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-19
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-19
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 03:00 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **RO**
Antimony	0.00151	0.000800	0.00250	J	mg/L	1	08/01/14 01:08 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	08/01/14 01:08 PM
Lead	0.00110	0.000300	0.00100		mg/L	1	08/01/14 01:08 PM
IS: Bismuth	90.4	0	70-200		%REC	1	08/01/14 01:08 PM
IS: Germanium	87.6	0	70-200		%REC	1	08/01/14 01:08 PM
IS: Indium	88.9	0	70-200		%REC	1	08/01/14 01:08 PM

MK 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detcted in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-24-90
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-20
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 03:20 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **RO**
Antimony	0.0673	0.000800	0.00250		mg/L	1	08/01/14 01:10 PM
Arsenic	0.0484	0.00200	0.00500		mg/L	1	08/01/14 01:10 PM
Lead	0.00479	0.000300	0.00100		mg/L	1	08/01/14 01:10 PM
IS: Bismuth	88.9	0	70-200		%REC	1	08/01/14 01:10 PM
IS: Germanium	85.0	0	70-200		%REC	1	08/01/14 01:10 PM
IS: Indium	86.3	0	70-200		%REC	1	08/01/14 01:10 PM

MK 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-18
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-21
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 04:03 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **RO**
Antimony	0.00127	0.000800	0.00250	J	mg/L	1	08/01/14 01:12 PM
Arsenic	0.00234	0.00200	0.00500	J	mg/L	1	08/01/14 01:12 PM
Lead	0.000433	0.000300	0.00100	J	mg/L	1	08/01/14 01:12 PM
IS: Bismuth	86.5	0	70-200		%REC	1	08/01/14 01:12 PM
IS: Germanium	85.8	0	70-200		%REC	1	08/01/14 01:12 PM
IS: Indium	86.2	0	70-200		%REC	1	08/01/14 01:12 PM

WKT 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-27-90
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-22
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 04:25 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **RO**
Antimony	0.0516	0.000800	0.00250		mg/L	1	08/01/14 01:13 PM
Arsenic	0.00224	0.00200	0.00500	J	mg/L	1	08/01/14 01:13 PM
Lead	0.00498	0.000300	0.00100		mg/L	1	08/01/14 01:13 PM
IS: Bismuth	86.4	0	70-200		%REC	1	08/01/14 01:13 PM
IS: Germanium	85.5	0	70-200		%REC	1	08/01/14 01:13 PM
IS: Indium	86.3	0	70-200		%REC	1	08/01/14 01:13 PM

MK 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-28-90
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-23
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 04:55 PM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **RO**
Antimony	0.0405	0.000800	0.00250		mg/L	1	08/01/14 01:15 PM
Arsenic	0.104	0.00200	0.00500		mg/L	1	08/01/14 01:15 PM
Lead	0.000540	0.000300	0.00100	J	mg/L	1	08/01/14 01:15 PM
IS: Bismuth	90.3	0	70-200		%REC	1	08/01/14 01:15 PM
IS: Germanium	89.4	0	70-200		%REC	1	08/01/14 01:15 PM
IS: Indium	89.2	0	70-200		%REC	1	08/01/14 01:15 PM

WK 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT:	D. B. Stephens & Assoc, Inc.	**Client Sample ID:**	MW-9
Project:	Rockwool Belton, TX	**Lab ID:**	1407278-24
Project No:	ES4.AIR0.12	**Collection Date:**	07/22/14 11:16 AM
Lab Order:	1407278	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER		**SW6020A**					Analyst: **RO**
Antimony	0.240	0.000800	0.00250		mg/L	1	08/01/14 01:17 PM
Arsenic	0.0997	0.00200	0.00500		mg/L	1	08/01/14 01:17 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	08/01/14 01:17 PM
IS: Bismuth	87.1	0	70-200		%REC	1	08/01/14 01:17 PM
IS: Germanium	86.2	0	70-200		%REC	1	08/01/14 01:17 PM
IS: Indium	86.1	0	70-200		%REC	1	08/01/14 01:17 PM

MK 8-8-14

Qualifiers:

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1407278
Project: Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140728A

Sample ID **DCS-63705-1** Batch ID: **63705** TestNo: **SW6020A** Units: **mg/L**
SampType: **DCS** Run ID: **ICP-MS3_140728A** Analysis Date: **7/28/2014 1:35:00 PM** Prep Date: **5/22/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00100	0.00250	0.00100	0	100	80	120	0	0	
Arsenic	0.000866	0.00500	0.00100	0	86.6	80	120	0	0	
Lead	0.000968	0.00100	0.00100	0	96.8	80	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1407278
Project: Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140801A

The QC data in batch 64976 applies to the following samples: 1407278-01A, 1407278-02A, 1407278-03A, 1407278-04A, 1407278-05A, 1407278-06A, 1407278-07A, 1407278-08A, 1407278-09A, 1407278-10A, 1407278-11A, 1407278-12A, 1407278-13A

Sample ID **MB-64976** Batch ID: **64976** TestNo: **SW6020A** Units: **mg/L**
SampType: **MBLK** Run ID: **ICP-MS3_140801A** Analysis Date: **8/1/2014 8:24:00 PM** Prep Date: **8/1/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Lead	<0.000300	0.00100								
IS: Bismuth	0.200		0.200		96.4	70	200			
IS: Germanium	0.200		0.200		111	70	200			
IS: Indium	0.200		0.200		99.0	70	200			

Sample ID **LCS-64976** Batch ID: **64976** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCS** Run ID: **ICP-MS3_140801A** Analysis Date: **8/1/2014 8:30:00 PM** Prep Date: **8/1/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.200	0.00250	0.200	0	100	80	120			
Arsenic	0.216	0.00500	0.200	0	108	80	120			
Lead	0.210	0.00100	0.200	0	105	80	120			
IS: Bismuth	0.200		0.200		96.6	70	200			
IS: Germanium	0.200		0.200		110	70	200			
IS: Indium	0.200		0.200		99.9	70	200			

Sample ID **LCSD-64976** Batch ID: **64976** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS3_140801A** Analysis Date: **8/1/2014 8:36:00 PM** Prep Date: **8/1/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.194	0.00250	0.200	0	96.8	80	120	3.20	15	
Arsenic	0.209	0.00500	0.200	0	105	80	120	3.20	15	
Lead	0.203	0.00100	0.200	0	101	80	120	3.58	15	
IS: Bismuth	0.200		0.200		96.0	70	200	0	0	
IS: Germanium	0.200		0.200		108	70	200	0	0	
IS: Indium	0.200		0.200		100	70	200	0	0	

Sample ID **1407278-03A SD** Batch ID: **64976** TestNo: **SW6020A** Units: **mg/L**
SampType: **SD** Run ID: **ICP-MS3_140801A** Analysis Date: **8/1/2014 8:54:00 PM** Prep Date: **8/1/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.226	0.0125	0	0.218				3.38	10	
Arsenic	<0.0100	0.0250	0	0.00778				0	10	
Lead	0.00180	0.00500	0	0.00161				11.1	10	R
IS: Bismuth	1.00		0.200		93.7	70	200	0	0	
IS: Germanium	1.00		0.200		105	70	200	0	0	
IS: Indium	1.00		0.200		96.4	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1407278
Project: Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140801A

Sample ID **1407278-03A PDS**	Batch ID: **64976**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **PDS**	Run ID: **ICP-MS3_140801A**	Analysis Date: **8/1/2014 9:55:00 PM**	Prep Date: **8/1/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.399	0.00250	0.200	0.218	90.2	80	120			
Arsenic	0.210	0.00500	0.200	0.00778	101	80	120			
Lead	0.202	0.00100	0.200	0.00161	100	80	120			
IS: Bismuth	0.200		0.200		87.6	70	200			
IS: Germanium	0.200		0.200		101	70	200			
IS: Indium	0.200		0.200		91.8	70	200			

Sample ID **1407278-03A MS**	Batch ID: **64976**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MS**	Run ID: **ICP-MS3_140801A**	Analysis Date: **8/1/2014 10:01:00 PM**	Prep Date: **8/1/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.425	0.00250	0.200	0.218	104	80	120			
Arsenic	0.224	0.00500	0.200	0.00778	108	80	120			
Lead	0.210	0.00100	0.200	0.00161	104	80	120			
IS: Bismuth	0.200		0.200		87.1	70	200			
IS: Germanium	0.200		0.200		101	70	200			
IS: Indium	0.200		0.200		90.9	70	200			

Sample ID **1407278-03A MSD**	Batch ID: **64976**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MSD**	Run ID: **ICP-MS3_140801A**	Analysis Date: **8/1/2014 10:07:00 PM**	Prep Date: **8/1/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.424	0.00250	0.200	0.218	103	80	120	0.353	15	
Arsenic	0.220	0.00500	0.200	0.00778	106	80	120	1.81	15	
Lead	0.209	0.00100	0.200	0.00161	104	80	120	0.239	15	
IS: Bismuth	0.200		0.200		90.3	70	200	0	0	
IS: Germanium	0.200		0.200		102	70	200	0	0	
IS: Indium	0.200		0.200		94.1	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1407278
Project: Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140801A

Sample ID	ICV1-140801	Batch ID:	R74656	TestNo:	SW6020A	Units:	mg/L
SampType:	ICV	Run ID:	ICP-MS3_140801A	Analysis Date:	8/1/2014 2:57:00 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0922	0.00250	0.100	0	92.2	90	110			
Arsenic	0.0988	0.00500	0.100	0	98.8	90	110			
Lead	0.101	0.00100	0.100	0	101	90	110			
IS: Bismuth	0.200		0.200		99.3	70	200			

Sample ID	ILCVL-140801	Batch ID:	R74656	TestNo:	SW6020A	Units:	mg/L
SampType:	LCVL	Run ID:	ICP-MS3_140801A	Analysis Date:	8/1/2014 3:03:00 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00215	0.00250	0.00200	0	108	70	130			
Arsenic	0.00569	0.00500	0.00500	0	114	70	130			
Lead	0.00122	0.00100	0.00100	0	122	70	130			
IS: Bismuth	0.200		0.200		98.0	70	200			

Sample ID	CCV2-140801	Batch ID:	R74656	TestNo:	SW6020A	Units:	mg/L
SampType:	CCV	Run ID:	ICP-MS3_140801A	Analysis Date:	8/1/2014 7:35:00 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.195	0.00250	0.200	0	97.3	90	110			
Arsenic	0.213	0.00500	0.200	0	106	90	110			
Lead	0.208	0.00100	0.200	0	104	90	110			
IS: Bismuth	0.200		0.200		95.1	70	200			

Sample ID	LCVL2-140801	Batch ID:	R74656	TestNo:	SW6020A	Units:	mg/L
SampType:	LCVL	Run ID:	ICP-MS3_140801A	Analysis Date:	8/1/2014 8:00:00 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00224	0.00250	0.00200	0	112	70	130			
Arsenic	0.00593	0.00500	0.00500	0	119	70	130			
Lead	0.00115	0.00100	0.00100	0	115	70	130			
IS: Bismuth	0.200		0.200		94.6	70	200			

Sample ID	CCV3-140801	Batch ID:	R74656	TestNo:	SW6020A	Units:	mg/L
SampType:	CCV	Run ID:	ICP-MS3_140801A	Analysis Date:	8/1/2014 10:13:00 PM	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.196	0.00250	0.200	0	98.2	90	110			
Arsenic	0.211	0.00500	0.200	0	106	90	110			
Lead	0.206	0.00100	0.200	0	103	90	110			
IS: Bismuth	0.200		0.200		91.6	70	200			
IS: Germanium	0.200		0.200		101	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1407278
Project: Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140801A

Sample ID **CCV3-140801**	Batch ID: **R74656**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_140801A**	Analysis Date: **8/1/2014 10:13:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
IS: Indium	0.200		0.200		95.5	70	200			

Sample ID **LCVL3-140801**	Batch ID: **R74656**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140801A**	Analysis Date: **8/1/2014 10:37:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00233	0.00250	0.00200	0	117	70	130			
Arsenic	0.00591	0.00500	0.00500	0	118	70	130			
Lead	0.00118	0.00100	0.00100	0	118	70	130			
IS: Bismuth	0.200		0.200		88.6	70	200			
IS: Germanium	0.200		0.200		100	70	200			
IS: Indium	0.200		0.200		92.2	70	200			

Sample ID **CCV4-140801**	Batch ID: **R74656**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_140801A**	Analysis Date: **8/1/2014 11:56:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.199	0.00250	0.200	0	99.4	90	110			
Arsenic	0.214	0.00500	0.200	0	107	90	110			
Lead	0.206	0.00100	0.200	0	103	90	110			
IS: Bismuth	0.200		0.200		84.0	70	200			
IS: Germanium	0.200		0.200		95.4	70	200			
IS: Indium	0.200		0.200		88.3	70	200			

Sample ID **LCVL4-140801**	Batch ID: **R74656**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140801A**	Analysis Date: **8/2/2014 12:26:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00222	0.00250	0.00200	0	111	70	130			
Arsenic	0.00587	0.00500	0.00500	0	117	70	130			
Lead	0.00112	0.00100	0.00100	0	112	70	130			
IS: Bismuth	0.200		0.200		84.7	70	200			
IS: Germanium	0.200		0.200		96.8	70	200			
IS: Indium	0.200		0.200		87.9	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1407278
Project: Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_140804B

Sample ID **ICV1-140804**	Batch ID: **R74687**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_140804B**	Analysis Date: **8/4/2014 1:58:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0915	0.00250	0.100	0	91.5	90	110			
IS: Indium	0.200		0.200		93.8	70	200			

Sample ID **ILCVL-140804**	Batch ID: **R74687**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140804B**	Analysis Date: **8/4/2014 2:10:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00199	0.00250	0.00200	0	99.2	70	130			
IS: Indium	0.200		0.200		93.1	70	200			

Sample ID **CCV1-140804**	Batch ID: **R74687**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_140804B**	Analysis Date: **8/4/2014 3:23:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.192	0.00250	0.200	0	96.0	90	110			
IS: Indium	0.200		0.200		97.6	70	200			

Sample ID **LCVL1-140804**	Batch ID: **R74687**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_140804B**	Analysis Date: **8/4/2014 3:35:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00230	0.00250	0.00200	0	115	70	130			
IS: Indium	0.200		0.200		94.4	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1407278
Project: Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140724A

Sample ID	DCS-63705-1	Batch ID:	63705	TestNo:	SW6020A	Units:	mg/L
SampType:	DCS	Run ID:	ICP-MS4_140724A	Analysis Date:	7/24/2014 2:00:00 PM	Prep Date:	5/22/2014

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.000950	0.00250	0.00100	0	95.0	80	120	0	0	
Arsenic	0.000944	0.00500	0.00100	0	94.4	80	120	0	0	
Lead	0.000988	0.00100	0.00100	0	98.8	80	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1407278
Project: Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140801A

The QC data in batch 64943 applies to the following samples: 1407278-14A, 1407278-15A, 1407278-16A, 1407278-17A, 1407278-18A, 1407278-19A, 1407278-20A, 1407278-21A, 1407278-22A, 1407278-23A, 1407278-24A

Sample ID **MB-64943** Batch ID: **64943** TestNo: **SW6020A** Units: **mg/L**
SampType: **MBLK** Run ID: **ICP-MS4_140801A** Analysis Date: **8/1/2014 12:10:00 PM** Prep Date: **7/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.000800	0.00250								
Arsenic	<0.00200	0.00500								
Lead	<0.000300	0.00100								
IS: Bismuth	0.200		0.200		102	70	200			

Sample ID **LCS-64943** Batch ID: **64943** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCS** Run ID: **ICP-MS4_140801A** Analysis Date: **8/1/2014 12:12:00 PM** Prep Date: **7/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.194	0.00250	0.200	0	97.1	80	120			
Arsenic	0.192	0.00500	0.200	0	96.2	80	120			
Lead	0.203	0.00100	0.200	0	102	80	120			
IS: Bismuth	0.200		0.200		101	70	200			

Sample ID **LCSD-64943** Batch ID: **64943** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCSD** Run ID: **ICP-MS4_140801A** Analysis Date: **8/1/2014 12:14:00 PM** Prep Date: **7/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.190	0.00250	0.200	0	94.9	80	120	2.26	15	
Arsenic	0.184	0.00500	0.200	0	92.1	80	120	4.39	15	
Lead	0.202	0.00100	0.200	0	101	80	120	0.794	15	
IS: Bismuth	0.200		0.200		101	70	200	0	0	

Sample ID **1407285-01A SD** Batch ID: **64943** TestNo: **SW6020A** Units: **mg/L**
SampType: **SD** Run ID: **ICP-MS4_140801A** Analysis Date: **8/1/2014 12:19:00 PM** Prep Date: **7/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	<0.00400	0.0125	0	0				0	10	
Arsenic	<0.0100	0.0250	0	0.00212				0	10	
Lead	<0.00150	0.00500	0	0				0	10	
IS: Bismuth	1.00		0.200		100	70	200	0	0	

Sample ID **1407285-01A PDS** Batch ID: **64943** TestNo: **SW6020A** Units: **mg/L**
SampType: **PDS** Run ID: **ICP-MS4_140801A** Analysis Date: **8/1/2014 12:39:00 PM** Prep Date: **7/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.175	0.00250	0.200	0	87.5	80	120			
Arsenic	0.189	0.00500	0.200	0.00212	93.4	80	120			
Lead	0.206	0.00100	0.200	0	103	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank
J	Analyte detected between MDL and RL
ND	Not Detected at the Method Detection Limit
RL	Reporting Limit
J	Analyte detected between SDL and RL
DF	Dilution Factor
MDL	Method Detection Limit
R	RPD outside accepted control limits
S	Spike Recovery outside control limits
N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1407278
Project: Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140801A

Sample ID **1407285-01A PDS**	Batch ID: **64943**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **PDS**	Run ID: **ICP-MS4_140801A**	Analysis Date: **8/1/2014 12:39:00 PM**	Prep Date: **7/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
IS: Bismuth	0.200		0.200		91.5	70	200			

Sample ID **1407285-01A MS**	Batch ID: **64943**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MS**	Run ID: **ICP-MS4_140801A**	Analysis Date: **8/1/2014 12:40:00 PM**	Prep Date: **7/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.195	0.00250	0.200	0	97.4	80	120			
Arsenic	0.193	0.00500	0.200	0.00212	95.5	80	120			
Lead	0.206	0.00100	0.200	0	103	80	120			
IS: Bismuth	0.200		0.200		90.4	70	200			

Sample ID **1407285-01A MSD**	Batch ID: **64943**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MSD**	Run ID: **ICP-MS4_140801A**	Analysis Date: **8/1/2014 12:42:00 PM**	Prep Date: **7/30/2014**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.194	0.00250	0.200	0	97.0	80	120	0.402	15	
Arsenic	0.193	0.00500	0.200	0.00212	95.4	80	120	0.166	15	
Lead	0.203	0.00100	0.200	0	101	80	120	1.71	15	
IS: Bismuth	0.200		0.200		90.0	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1407278
Project: Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140801A

Sample ID ICV-140801	Batch ID: R74662	TestNo: SW6020A	Units: mg/L
SampType: ICV	Run ID: ICP-MS4_140801A	Analysis Date: 8/1/2014 11:25:00 AM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0934	0.00250	0.100	0	93.4	90	110			
Arsenic	0.0926	0.00500	0.100	0	92.6	90	110			
Lead	0.100	0.00100	0.100	0	100	90	110			
IS: Bismuth	0.200		0.200		101	70	200			

Sample ID LCVL-140801	Batch ID: R74662	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS4_140801A	Analysis Date: 8/1/2014 11:29:00 AM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00204	0.00250	0.00200	0	102	70	130			
Arsenic	0.00494	0.00500	0.00500	0	98.8	70	130			
Lead	0.00110	0.00100	0.00100	0	110	70	130			
IS: Bismuth	0.200		0.200		101	70	200			

Sample ID CCV1-140801	Batch ID: R74662	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS4_140801A	Analysis Date: 8/1/2014 12:44:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.202	0.00250	0.200	0	101	90	110			
Arsenic	0.202	0.00500	0.200	0	101	90	110			
Lead	0.215	0.00100	0.200	0	107	90	110			
IS: Bismuth	0.200		0.200		95.0	70	200			

Sample ID LCVL1-140801	Batch ID: R74662	TestNo: SW6020A	Units: mg/L
SampType: LCVL	Run ID: ICP-MS4_140801A	Analysis Date: 8/1/2014 12:54:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00214	0.00250	0.00200	0	107	70	130			
Arsenic	0.00492	0.00500	0.00500	0	98.5	70	130			
Lead	0.00107	0.00100	0.00100	0	107	70	130			
IS: Bismuth	0.200		0.200		96.3	70	200			

Sample ID CCV2-140801	Batch ID: R74662	TestNo: SW6020A	Units: mg/L
SampType: CCV	Run ID: ICP-MS4_140801A	Analysis Date: 8/1/2014 1:30:00 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.203	0.00250	0.200	0	101	90	110			
Arsenic	0.203	0.00500	0.200	0	101	90	110			
Lead	0.211	0.00100	0.200	0	105	90	110			
IS: Bismuth	0.200		0.200		96.3	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1407278
Project: Rockwool Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_140801A

Sample ID **LCVL2-140801** Batch ID: **R74662** TestNo: **SW6020A** Units: **mg/L**
SampType: **LCVL** Run ID: **ICP-MS4_140801A** Analysis Date: **8/1/2014 2:01:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00211	0.00250	0.00200	0	106	70	130			
Arsenic	0.00495	0.00500	0.00500	0	99.0	70	130			
Lead	0.00101	0.00100	0.00100	0	101	70	130			
IS: Bismuth	0.200		0.200		97.6	70	200			

Qualifiers:

B	Analyte detected in the associated Method Blank
J	Analyte detected between MDL and RL
ND	Not Detected at the Method Detection Limit
RL	Reporting Limit
J	Analyte detected between SDL and RL
DF	Dilution Factor
MDL	Method Detection Limit
R	RPD outside accepted control limits
S	Spike Recovery outside control limits
N	Parameter not NELAC certified

DHL Analytical, Inc.

Date: *05-Aug-14*

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1407278
Project: Rockwool Belton, TX

MQL SUMMARY REPORT

TestNo: SW6020A	MDL	MQL
Analyte	**mg/L**	**mg/L**
Antimony	0.000800	0.00250
Arsenic	0.00200	0.00500
Lead	0.000300	0.00100

Qualifiers: MQL -Method Quantitation Limit as defined by TRRP
MDL -Method Detection Limit as defined by TRRP

ICP-MS3
For

DHL Work Order
1407278

ICP-MS3_140801A
For

DHL Work Order
1407278

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS3_140801A SOP: Metals-ICP-MS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			x
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			x
P/A Factor	Before ICAL	Increasing trend	X			
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			x
ICSAB (N/A for Method 200.8)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLS and ICSA/ICSAB is N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			x
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%	X			
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%	X			
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%	X			
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)	X			
Dilution Test (SD) - RPD	Every Batch	10		X		
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)	X			

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			X
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> 5% of highest standard	X			
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality	X			X
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

TECHNICAL DIRECTOR / QA MANAGER APPROVAL SIGNATURE AND DATE STAMP:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> MDL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag data / Case narrative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

See notes in Run Log

Analyst: Karyn Lane Date of Completion: 8/4/2014

Second-Level Review: Evelyn Lane Ferrero Reviewer Date Stamp:

REVIEWED
By Evelyn Ferrero at 2:45:34 PM, 8/4/2014

DHL Analytical, Inc.

Run ID: **ICP-MS3_140801A** **Run No.:** 74656

Analytical Run Date: 8/1/2014 **InstrumentID:** ICP-MS3

Analyst: Karyn Lane

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TW	CAL	R74656	8/1/2014 1:09:00 PM		
1/20 ppb STD.	1	ICPMS_TW	CAL	R74656	8/1/2014 1:15:00 PM		
10/200 ppb STD.	1	ICPMS_TW	CAL	R74656	8/1/2014 1:21:00 PM		
50/1000 ppb STD.	1	ICPMS_TW	CAL	R74656	8/1/2014 1:27:00 PM		
100/2000 ppb STD.	1	ICPMS_TW	CAL	R74656	8/1/2014 1:33:00 PM		
250/5000 ppb STD.	1	ICPMS_TW	CAL	R74656	8/1/2014 1:39:00 PM		
500/10000 ppb STD.	1	ICPMS_TW	CAL	R74656	8/1/2014 1:45:00 PM		
2000/25000 ppb STD.	1	ICPMS_TW	CAL	R74656	8/1/2014 1:51:00 PM		
ICSA-140801	1	ICPMS_TW	ICSA	R74656	8/1/2014 2:09:00 PM		
ICSAB-140801	1	ICPMS_TW	ICSB	R74656	8/1/2014 2:15:00 PM		
ICV1-140801	1	6020A_W	ICV	R74656	8/1/2014 2:57:00 PM		
ILCVL-140801	1	6020A_W	LCVL	R74656	8/1/2014 3:03:00 PM		
ICB1-140801	1	6020A_W	ICB	R74656	8/1/2014 3:10:00 PM		
MB-64972	1	6020A_DW	MBLK	64972	8/1/2014 3:16:00 PM		
LCS-64972	1	6020A_DW	LCS	64972	8/1/2014 3:28:00 PM		
LCSD-64972	1	6020A_DW	LCSD	64972	8/1/2014 3:34:00 PM		
1407346-02B	1	6020A_DW	SAMP	64972	8/1/2014 3:46:00 PM		
1407346-02B SD	5	6020A_DW	SD	64972	8/1/2014 3:52:00 PM		
1407346-01B	1	6020A_DW	SAMP	64972	8/1/2014 4:10:00 PM		
1407346-03B	1	6020A_DW	SAMP	64972	8/1/2014 4:16:00 PM		
1407346-04B	1	6020A_DW	SAMP	64972	8/1/2014 4:22:00 PM		
1407346-02B PDS	1	6020A_DW	PDS	64972	8/1/2014 4:52:00 PM		
1407346-02B MS	1	6020A_DW	MS	64972	8/1/2014 4:58:00 PM		
1407346-02B MSD	1	6020A_DW	MSD	64972	8/1/2014 5:04:00 PM		
CCV1-140801	1	6020A_W	CCV	R74656	8/1/2014 5:23:00 PM		
LCVL1-140801	1	6020A_W	LCVL	R74656	8/1/2014 5:41:00 PM		
CCB1-140801	1	6020A_W	CCB	R74656	8/1/2014 5:47:00 PM		
MB-64981	1	6020A_W	MBLK	64981	8/1/2014 5:53:00 PM		
LCS-64981	1	6020A_W	LCS	64981	8/1/2014 6:06:00 PM		
LCSD-64981	1	6020A_W	LCSD	64981	8/1/2014 6:12:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140729	ICPMS CCV 200/5000 PPB		10/27/2014
MET-H2CAL-1407	ICPMS High Cal2 2000ppb std 8		10/15/2014
MET-HCAL-14071	ICPMS High Cal 500ppb/10ppm s		10/15/2014
MET-ICV-140729	ICPMS ICV 100 ppb		10/27/2014
MET-IS-140718	INTERNAL STANDARD 1 PPM		10/16/2014
MET-L2CAL-14071	ICPMS Low Cal2 1/20ppb std 2		10/15/2014
MET-LCAL-140717	ICPMS Low Cal 10/200ppb std 3		10/15/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		10/15/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		10/15/2014
MET-MCAL-14071	ICPMS Mid Cal 250/5000ppb std		10/15/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140715	250 PPM Naturals+Al+Fe PDS		10/13/2014
MET-PDS-140717-	10 PPM CUSTOM PDS SOLUTI		10/15/2014
MET-PDS-140717-	10 PPM Ag+Sb PDS		10/15/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		10/16/2014

Run ID: ICP-MS3_140801A **Run No.:** 74656

1407292-07C	1	6020A_W	SAMP	64981	8/1/2014 6:24:00 PM		FOR QC REFERENCE ONLY. DNR.
1407292-07C SD	5	6020A_W	SD	64981	8/1/2014 6:30:00 PM		
1407355-17A	1	6020A_W	SAMP	64981	8/1/2014 6:54:00 PM		
1407292-07C PDS	1	6020A_W	PDS	64981	8/1/2014 7:17:00 PM		
1407292-07C MS	1	6020A_W	MS	64981	8/1/2014 7:23:00 PM		
1407292-07C MSD	1	6020A_W	MSD	64981	8/1/2014 7:29:00 PM		
CCV2-140801	1	6020A_W	CCV	R74656	8/1/2014 7:35:00 PM		
LCVL2-140801	1	6020A_W	LCVL	R74656	8/1/2014 8:00:00 PM		
CCB2-140801	1	6020A_W	CCB	R74656	8/1/2014 8:18:00 PM		
MB-64976	1	6020A_W	MBLK	64976	8/1/2014 8:24:00 PM		
LCS-64976	1	6020A_W	LCS	64976	8/1/2014 8:30:00 PM		
LCSD-64976	1	6020A_W	LCSD	64976	8/1/2014 8:36:00 PM		
1407278-03A	1	6020A_W	SAMP	64976	8/1/2014 8:48:00 PM		
1407278-03A SD	5	6020A_W	SD	64976	8/1/2014 8:54:00 PM		Pb fails. PDS ok.
1407278-01A	1	6020A_W	SAMP	64976	8/1/2014 9:00:00 PM		
1407278-02A	1	6020A_W	SAMP	64976	8/1/2014 9:06:00 PM		
1407278-04A	1	6020A_W	SAMP	64976	8/1/2014 9:12:00 PM		
1407278-05A	1	6020A_W	SAMP	64976	8/1/2014 9:19:00 PM		
1407278-06A	1	6020A_W	SAMP	64976	8/1/2014 9:25:00 PM		
1407278-07A	1	6020A_W	SAMP	64976	8/1/2014 9:31:00 PM		
1407278-08A	1	6020A_W	SAMP	64976	8/1/2014 9:37:00 PM		
1407278-09A	1	6020A_W	SAMP	64976	8/1/2014 9:43:00 PM		
1407278-10A	1	6020A_W	SAMP	64976	8/1/2014 9:49:00 PM		
1407278-03A PDS	1	6020A_W	PDS	64976	8/1/2014 9:55:00 PM		
1407278-03A MS	1	6020A_W	MS	64976	8/1/2014 10:01:00 PM		
1407278-03A MSD	1	6020A_W	MSD	64976	8/1/2014 10:07:00 PM		
CCV3-140801	1	6020A_W	CCV	R74656	8/1/2014 10:13:00 PM		
LCVL3-140801	1	6020A_W	LCVL	R74656	8/1/2014 10:37:00 PM		
CCB3-140801	1	6020A_W	CCB	R74656	8/1/2014 10:55:00 PM		
1407278-11A	1	6020A_W	SAMP	64976	8/1/2014 11:38:00 PM		
1407278-12A	1	6020A_W	SAMP	64976	8/1/2014 11:44:00 PM		
1407278-13A	1	6020A_W	SAMP	64976	8/1/2014 11:50:00 PM		
CCV4-140801	1	6020A_W	CCV	R74656	8/1/2014 11:56:00 PM		
LCVL4-140801	1	6020A_W	LCVL	R74656	8/2/2014 12:26:00 AM		
CCB4-140801	1	6020A_W	CCB	R74656	8/2/2014 12:39:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140729	ICPMS CCV 200/5000 PPB		10/27/2014
MET-H2CAL-1407	ICPMS High Cal2 2000ppb std 8		10/15/2014
MET-HCAL-14071	ICPMS High Cal 500ppb/10ppm s		10/15/2014
MET-ICV-140729	ICPMS ICV 100 ppb		10/27/2014
MET-IS-140718	INTERNAL STANDARD 1 PPM		10/16/2014
MET-L2CAL-14071	ICPMS Low Cal2 1/20ppb std 2		10/15/2014
MET-LCAL-140717	ICPMS Low Cal 10/200ppb std 3		10/15/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		10/15/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		10/15/2014
MET-MCAL-14071	ICPMS Mid Cal 250/5000ppb std		10/15/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140715	250 PPM Naturals+Al+Fe PDS		10/13/2014
MET-PDS-140717-	10 PPM CUSTOM PDS SOLUTI		10/15/2014
MET-PDS-140717-	10 PPM Ag+Sb PDS		10/15/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		10/16/2014

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		CALBEG	Start of CALIB						
2	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
3	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
4	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
5	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
6	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		1/20 ppb STD.	CAL ICPMS_TW	Level 2				
7	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		10/200 ppb STD.	CAL ICPMS_TW	Level 3				
8	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		50/1000 ppb STD.	CAL ICPMS_TW	Level 4				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		100/2000 ppb STD.	CAL ICPMS_TW	Level 5				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		250/5000 ppb STD.	CAL ICPMS_TW	Level 6				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		500/10000 ppb STD.	CAL ICPMS_TW	Level 7				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		2000/25000 ppb STD.	CAL ICPMS_TW	Level 8				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
15		Keyword		CALEND	End of CALIB						
16		Keyword		ICSBEG	Start of ICS						
17	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-140801	ICSAICPMS_TW	1.000				
18	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-140801	ICSBICPMS_TW	1.000				
19	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CAL ICPMS_TW	1.000				
20	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		RINSE	CAL ICPMS_TW	1.000				
21		Keyword		ICSEND	End of ICS						
22		Keyword		SMPLBEG	Start of SMPL						
23	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-140801	ICV ICPMS_TW	1.000				
24	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	2101		ICB1-140801	ICB ICPMS_TW	1.000				
25	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-140801	ICV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
26	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		ILCVL-140801	LCVL6020A_W	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-140801	ICV ICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		ILCVL-140801	LCVL6020A_W	1.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1105		ICB1-140801	ICB ICPMS_TW	1.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2201		MB-64972	MBLK6020A_DW	1.000				
31	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2202		MB-64911 SPLP	MBLKSPLP_MET	1.000				
32	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2203		LCS-64972	LCS 6020A_DW	1.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2204		LCSD-64972	LCSD6020A_DW	1.000				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2205		1407346-02B	SAMP6020A_DW	1.000				
36	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2206		1407346-02B SD	SD 6020A_DW	1.000				
37	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2207		1407297-01B	SAMPICPMS_DW	1.000				
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2208		1407154-03B	SAMPSPLP_MET	1.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2209		1407346-01B	SAMP6020A_DW	1.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2210		1407346-03B	SAMP6020A_DW	1.000				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2211		1407346-04B	SAMP6020A_DW	1.000				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2212		1407331-01B	SAMPICPMS_DW	1.000				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2301		1407331-02B	SAMPICPMS_DW	1.000				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2302		1407331-03B	SAMPICPMS_DW	1.000				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2303		1407331-04B	SAMPICPMS_DW	1.000				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2304		1407346-02B PDS	PDS 6020A_DW	1.000				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2305		1407346-02B MS	MS 6020A_DW	1.000				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2306		1407346-02B MSD	MSD 6020A_DW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
49	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-140801	CCV ICPMS_TW	1.000				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1306		CCV1-140801	CCV ICPMS_TW	1.000				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-140801	CCV ICPMS_TW	1.000				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB1-140801	CCB ICPMS_TW	1.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB1-140801	CCB ICPMS_TW	1.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL1-140801	LCVL6020A_W	1.000				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-140801	CCB ICPMS_TW	1.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2401		MB-64981	MBLK6020A_W	1.000				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2402		MB-64932-TCLP	MBLKTCLP_MET	1.000				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2403		LCS-64981	LCS 6020A_W	1.000				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2404		LCSD-64981	LCSD6020A_W	1.000				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2405		1407292-07C	SAMP6020A_W	1.000				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2406		1407292-07C SD	SD_6020A_W	5.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2407		1407292-08C	SAMPICPMS_TW	1.000				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2408		1407292-09C	SAMPICPMS_TW	1.000				
65	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2409		1407292-10C	SAMPICPMS_TW	1.000				
66	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2410		1407355-17A	SAMP6020A_W	1.000				
67	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2411		1407314-06B	SAMPICPMS_TW	1.000				
68	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2412		1407315-12A	SAMPICPMS_TW	1.000				
69	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2501		1407299-01A	SAMPTCLP_MET	1.000				
70	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2502		1407292-07C PDS	PDS 6020A_W	1.000				
71	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2503		1407292-07C MS	MS_6020A_W	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
72	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2504		1407292-07C MSD	MSD 6020A_W	1.000				
73	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-140801	CCV ICPMS_TW	1.000				
74	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-140801	CCV ICPMS_TW	1.000				
75	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB2-140801	CCB ICPMS_TW	1.000				
76	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-140801	CCB ICPMS_TW	1.000				
77	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL2-140801	LCVL6020A_W	1.000				
78	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL2-140801	LCVL6020A_W	1.000				
79	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-140801	CCB ICPMS_TW	1.000				
80	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-140801	CCB ICPMS_TW	1.000				
81	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	3101		MB-64976	MBLK6020A_W	1.000				
82	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	3102		LCS-64976	LCS 6020A_W	1.000				
83	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	3103		LCSD-64976	LCSD6020A_W	1.000				
84	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
85	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3104		1407278-03A	SAMP6020A_W	1.000				
86	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3105		1407278-03A SD	SD 6020A_W	5.000				
87	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3106		1407278-01A	SAMP6020A_W	1.000				
88	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3107		1407278-02A	SAMP6020A_W	1.000				
89	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3108		1407278-04A	SAMP6020A_W	1.000				
90	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3109		1407278-05A	SAMP6020A_W	1.000				
91	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3110		1407278-06A	SAMP6020A_W	1.000				
92	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3111		1407278-07A	SAMP6020A_W	1.000				
93	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3112		1407278-08A	SAMP6020A_W	1.000				
94	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3201		1407278-09A	SAMP6020A_W	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
95	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3202		1407278-10A	SAMP6020A_W	1.000				
96	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3203		1407278-03A PDS	PDS 6020A_W	1.000				
97	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	3204		1407278-03A MS	MS_6020A_W	1.000				
98	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	3205		1407278-03A MSD	MSD 6020A_W	1.000				
99	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-140801	CCV ICPMS_TW	1.000				
100	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-140801	CCV ICPMS_TW	1.000				
101	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB3-140801	CCB ICPMS_TW	1.000				
102	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-140801	CCB ICPMS_TW	1.000				
103	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL3-140801	LCVL6020A_W	1.000				
104	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL3-140801	LCVL6020A_W	1.000				
105	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB3-140801	CCB ICPMS_TW	1.000				
106	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-140801	CCB ICPMS_TW	1.000				
107	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3301		1407292-01C	SAMPICPMS_TW	1.000				
108	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3302		1407292-02C	SAMPICPMS_TW	1.000				
109	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3303		1407292-03C	SAMPICPMS_TW	1.000				
110	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3304		1407292-04C	SAMPICPMS_TW	1.000				
111	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3305		1407292-05C	SAMPICPMS_TW	1.000				
112	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3306		1407292-06C	SAMPICPMS_TW	1.000				
113	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3307		1407278-11A	SAMP6020A_W	1.000				
114	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3308		1407278-12A	SAMP6020A_W	1.000				
115	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3309		1407278-13A	SAMP6020A_W	1.000				
116	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-140801	CCV ICPMS_TW	1.000				
117	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-140801	CCV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
118	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB4-140801	CCB ICPMS_TW	1.000				
119	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB4-140801	CCB ICPMS_TW	1.000				
120	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL4-140801	LCVL6020A_W	1.000				
121	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL4-140801	LCVL6020A_W	1.000				
122	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB4-140801	CCB ICPMS_TW	1.000				
123	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB4-140801	CCB ICPMS_TW	1.000				
124	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3401		1407331-05B	SAMPICPMS_DW	1.000				
125	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3402		1407331-06B	SAMPICPMS_DW	1.000				
126	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3403		1407331-07B	SAMPICPMS_DW	1.000				
127	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3404		1407331-08B	SAMPICPMS_DW	1.000				
128	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3405		1407331-09B	SAMPICPMS_DW	1.000				
129	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3406		1407331-10B	SAMPICPMS_DW	1.000				
130	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3407		1407331-11B	SAMPICPMS_DW	1.000				
131	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV5-140801	CCV ICPMS_TW	1.000				
132	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV5-140801	CCV ICPMS_TW	1.000				
133	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB5-140801	CCB ICPMS_TW	1.000				
134	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-140801	CCB ICPMS_TW	1.000				
135	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL5-140801	LCVL6020A_W	1.000				
136	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL5-140801	LCVL6020A_W	1.000				
137	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB5-140801	CCB ICPMS_TW	1.000				
138	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-140801	CCB ICPMS_TW	1.000				
139		Keyword		StandBy							
140		Keyword		SMPLEND	End of SMPL						
141		Keyword		End	End of Sequence						

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
142		Keyword		CCVBEG	Start of CCV						
143		Keyword		CCVEND	End of CCV						
144		Keyword		BLKBEG	Start of BLANK						
145		Keyword		BLKEND	End of BLANK						
146		Keyword		ERRBEG	Start of ERRTERM						
147		Keyword		ERREND	End of ERRTERM						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/1/2014 8:00:00 AM**
Digestion: **Start: 8/1/2014 8:30:00 AM / Stop: 8/1/2014 1:26:00 PM**
Prep End Date: **8/1/2014 1:27:08 PM**

Prep Batch **64976** Prep Code: **3005A** Technician: **Matthew Kuhaneck**

Prep Factor Units: **mL/mL**

Equipment List
Thermometer #71
Hot Block #4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1407278-01A	Aqueous		50	50	1.000	1 of 1
1407278-02A	Aqueous		50	50	1.000	1 of 1
1407278-03A	Aqueous		50	50	1.000	1 of 3
1407278-03A MS	Aqueous		50	50	1.000	of
1407278-03A MSD	Aqueous		50	50	1.000	of
1407278-03A PDS	Aqueous		50	50	1.000	of
1407278-03A SD	Aqueous		50	50	1.000	of
1407278-04A	Aqueous		50	50	1.000	1 of 1
1407278-05A	Aqueous		50	50	1.000	1 of 1
1407278-06A	Aqueous		50	50	1.000	1 of 1
1407278-07A	Aqueous		50	50	1.000	1 of 1
1407278-08A	Aqueous		50	50	1.000	1 of 1
1407278-09A	Aqueous		50	50	1.000	1 of 1
1407278-10A	Aqueous		50	50	1.000	1 of 1
1407278-11A	Aqueous		50	50	1.000	1 of 1
1407278-12A	Aqueous		50	50	1.000	1 of 1
1407278-13A	Aqueous		50	50	1.000	1 of 1
1407292-01C	Aqueous		50	50	1.000	1 of 1
1407292-02C	Aqueous		50	50	1.000	1 of 1
1407292-03C	Aqueous		50	50	1.000	1 of 1
1407292-04C	Aqueous		50	50	1.000	1 of 1
1407292-05C	Aqueous		50	50	1.000	1 of 1
1407292-06C	Aqueous		50	50	1.000	1 of 1
LCS-64976	Aqueous		50	50	1.000	of
LCSD-64976	Aqueous		50	50	1.000	of
MB-64976	Aqueous		50	50	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
8095	Hydrochloric Acid (Trace Metal Grade)	1	ml	07/05/2016
8144	Digestion Vessels	69	ml	11/10/2014
8198	Nitric Acid (Trace Metal Grade)	1	ml	12/24/2015

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-140109-01	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/06/2015
MET-140109-02	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/10/2015
MET-SPIKE-140716-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	08/16/2014
MET-SPIKE-140724-1	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MS	0.2	08/24/2014
MET-SPIKE-140724-2	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	08/24/2014

REVIEWED
By Evelyn Ferrero at 2:46:55 PM, 8/4/2014

Calibration Summary Report

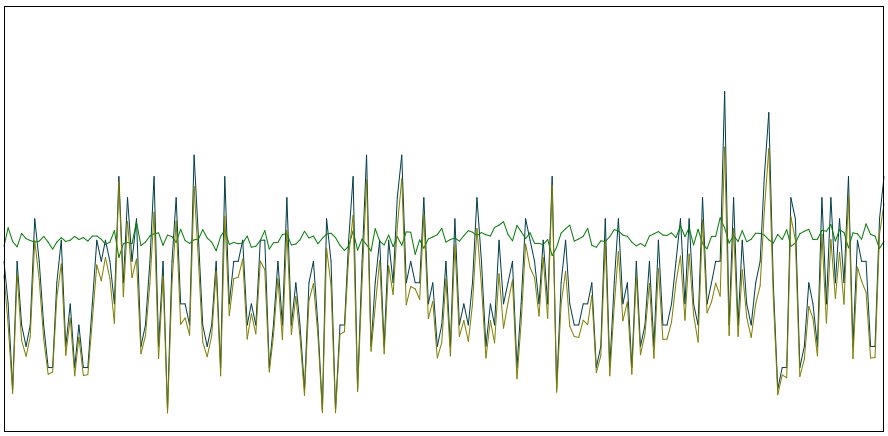
Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3Fe.C
Last Update: Aug 01 2014 02:34 pm
Cal Type: Y=aX+[blank]

Standard	Date Acquired	File
BLANK STD 1	Aug 1 2014 01:09 pm	c:\icpchem\1\data\14h01m04.b\004calb.d\
1/20 ppb STD.	Aug 1 2014 01:15 pm	c:\icpchem\1\data\14h01m04.b\005cals.d\
10/200 ppb STD.	Aug 1 2014 01:21 pm	c:\icpchem\1\data\14h01m04.b\006cals.d\
50/1000 ppb STD.	Aug 1 2014 01:27 pm	c:\icpchem\1\data\14h01m04.b\007cals.d\
100/2000 ppb STD.	Aug 1 2014 01:33 pm	c:\icpchem\1\data\14h01m04.b\008cals.d\
250/5000 ppb STD.	Aug 1 2014 01:39 pm	c:\icpchem\1\data\14h01m04.b\009cals.d\

Element Name	Corr Coef	Coef A	Coef B	Lvl 2	Lvl 6	Lvl 7	L7 %R	Lvl 8	L8 %R
Li	0.0764	-3.36E-006	0.05832	1843.00	1,603	2133		1264	
Be	0.9992	0.07538	0.001279	1.00	266	491	98%	--------	######
B	0.9996	0.04374	0.1038	0.97	278	548	110%	1,984	99%
Na	0.9998	0.1954	25.58	19.25	5,274	10,400	104%	24,780	99%
Mg	1.0000	0.09129	0.2904	19.74	5,084	10,010	100%	24,970	100%
Al	1.0000	0.02954	0.2823	20.89	5,078	9,953	100%	--------	######
K	1.0000	0.06019	9.565	9.70	5,072	10,070	101%	24,950	100%
Ca	0.9997	0.006766	1.183	5.99	5,385	10,400	104%	24,760	99%
Ti	0.9998	0.0251	0.002951	0.97	268	538	108%	1,988	99%
V	1.0000	0.9992	0.2246	0.99	260	513	103%	1,995	100%
Cr	0.9999	1.244	0.9328	1.06	263	521	104%	1,993	100%
Mn	0.9998	0.548	0.07671	0.99	269	530	106%	1,990	100%
Fe	0.9998	1.599	7.09	20.44	5,134	9,914	99%	--------	######
Co	0.9998	3.318	0.1375	1.12	268	533	107%	1,989	99%
Ni	0.9998	0.9301	0.5924	1.07	269	535	107%	1,989	99%
Cu	0.9998	2.56	1.524	0.95	269	531	106%	1,989	99%
Zn	0.9998	0.3131	0.6006	0.37	269	533	107%	1,989	99%
As	0.9999	0.1958	0.04776	1.03	263	523	105%	1,992	100%
Se	0.9999	0.01049	0.00691	1.10	265	525	105%	1,991	100%
Sr	0.9997	0.2773	0.02608	1.08	276	537	107%	1,987	99%
Mo	1.0000	0.0554	0.002955	0.98	250	500	100%	--------	######
Ag	1.0000	0.1348	0.001783	0.99	248	501	100%	--------	######
Cd	0.9999	0.02734	0.0006753	1.02	263	520	104%	1,993	100%
Sn	0.9995	0.07831	0.06599	0.79	271	556	111%	1,983	99%
Sb	0.9999	0.1153	0.00258	0.97	245	503	101%	--------	######
Ba	0.9999	0.03998	0.003604	1.02	261	517	103%	1,994	100%
Tl	0.9998	0.2786	0.006488	1.03	275	531	106%	1,989	99%
Pb	0.9997	0.3811	0.01404	1.04	272	542	108%	1,986	99%

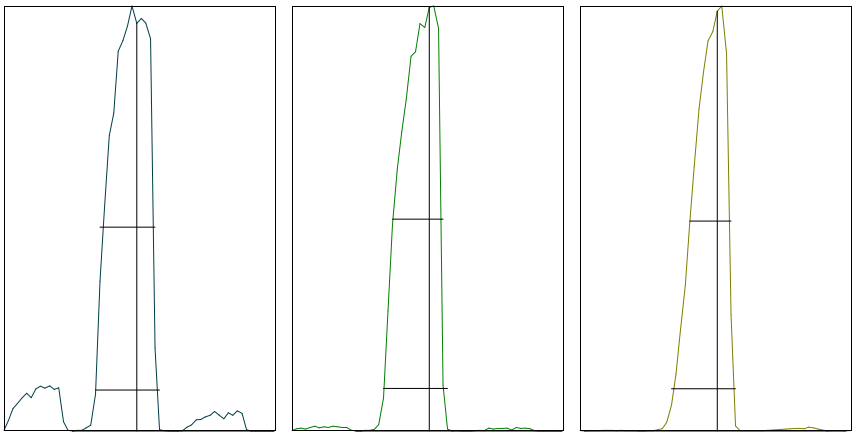
Tune Report

Tune File : He.U
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.2000 sec	
n:	200	
Oxide:	156/140	0.469%
Doubly Charged:	70/140	1.614%

m/z	Range	Count	Mean	RSD%	Background
51	20	12.0	6.9	41.08	0.50
59	5,000	2239.0	2274.6	3.50	0.70
51/59	1	0.536%	0.303%	41.32	



m/z:	59	89	205
Height:	2,304	1,442	5,584
Axis:	59.00	89.05	205.05
W-50%:	0.60	0.55	0.45
W-10%:	0.700	0.700	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.5600 sec

Y axis : Linear

Generated : Aug 01, 2014 11:59:35
Printed : Aug 01, 2014 11:59:37

Tune Report

Tune File : He.U
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1550	W	Extract 1	:	0	V	AMU Gain	:	121	
RF Matching	:	1.7	V	Extract 2	:	-130	V	AMU Offset	:	123	
Smpl Depth	:	10	mm	Omega Bias-ce	:	-16	V	Axis Gain	:	0.9993	
Torch-H	:	-0.2	mm	Omega Lens-ce	:	0.8	V	Axis Offset	:	-0.06	
Torch-V	:	0.9	mm	Cell Entrance	:	-40	V	QP Bias	:	-16.8	V
Carrier Gas	:	1.15	L/min	QP Focus	:	-9	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1710	V
Sample Pump	:	---	rps	OctP RF	:	200	V	Pulse HV	:	1220	V
S/C Temp	:	2	degC	OctP Bias	:	-16.8	V				

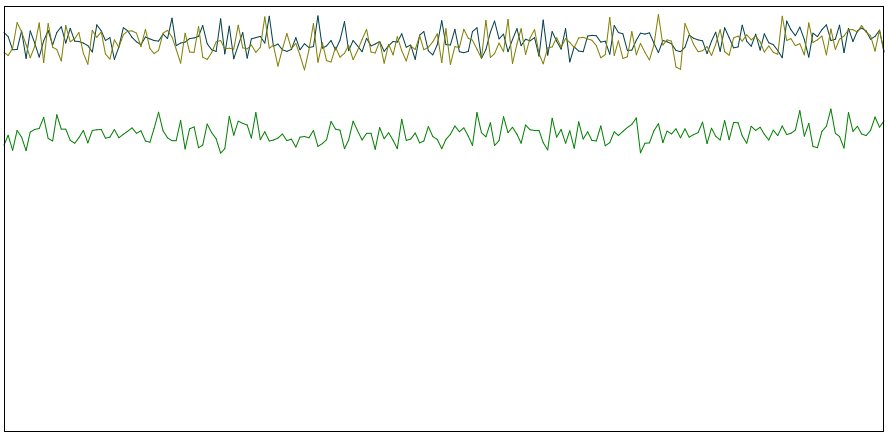
===Reaction Cell===

Reaction Mode	:	ON									
H2 Gas	:	0	mL/min	He Gas	:	4.5	mL/min	Optional Gas	:	---	%

Generated : Aug 01, 2014 11:59:35
Printed : Aug 01, 2014 11:59:39

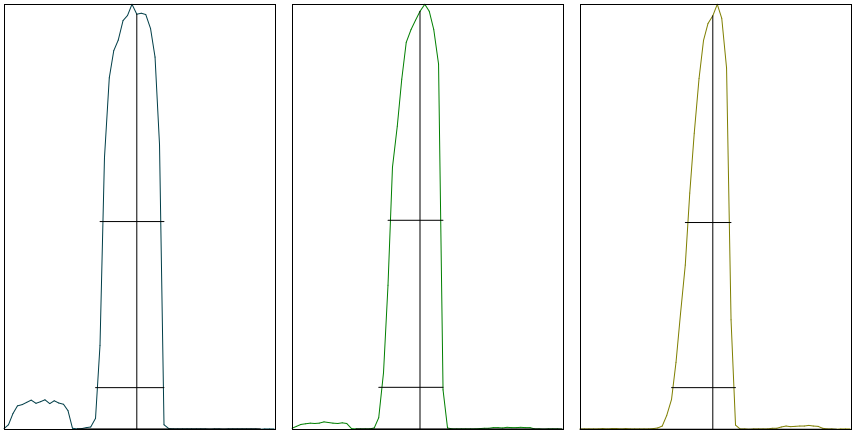
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.8200 sec	
n:	200	
Oxide:	156/140	1.016%
Doubly Charged:	70/140	1.928%

m/z	Range	Count	Mean	RSD%	Background
7	10,000	8945.0	9195.8	2.48	14.80
89	20,000	14610.0	14007.1	3.04	12.30
205	10,000	8921.0	9107.9	3.02	19.20
156/140	2	0.890%	0.984%	9.26	
70/140	5	1.975%	1.953%	7.84	
23	100,000	57061.0	57582.4	1.13	11.90
80	500,000	388188.0	387216.2	0.37	12.50



m/z:	7	89	205
Height:	9,060	14,147	9,117
Axis:	7.00	88.95	205.00
W-50%:	0.70	0.60	0.50
W-10%:	0.7500	0.700	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.7600 sec

Y axis : Linear

Generated : Aug 01, 2014 11:56:35
Printed : Aug 01, 2014 11:56:37

Tune Report

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1550	W	Extract 1	:	0	V	AMU Gain	:	121	
RF Matching	:	1.7	V	Extract 2	:	-130	V	AMU Offset	:	123	
Smpl Depth	:	10	mm	Omega Bias-ce	:	-16	V	Axis Gain	:	0.9993	
Torch-H	:	-0.2	mm	Omega Lens-ce	:	0.8	V	Axis Offset	:	-0.06	
Torch-V	:	0.9	mm	Cell Entrance	:	-40	V	QP Bias	:	-3.5	V
Carrier Gas	:	1.15	L/min	QP Focus	:	2	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1710	V
Sample Pump	:	---	rps	OctP RF	:	200	V	Pulse HV	:	1220	V
S/C Temp	:	2	degC	OctP Bias	:	-7	V				

===Reaction Cell===

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

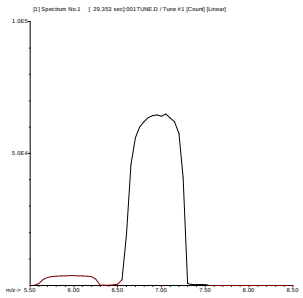
Generated : Aug 01, 2014 11:56:35
Printed : Aug 01, 2014 11:56:39

6020 QC Tune Report

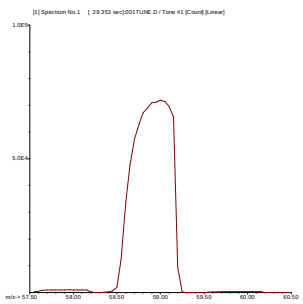
Data File: C:\ICPCHEM\1\DATA\14H01m03.B\001TUNE.D
Date Acquired: Aug 1 2014 12:32 pm
Acq. Method: TN6020.M
Operator: SW
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

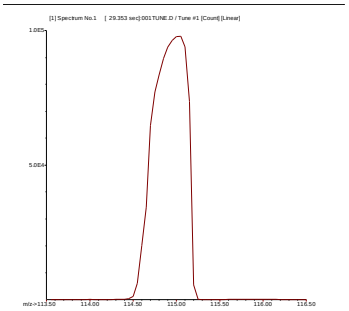
Element	Actual	Required	Flag
7 Li	1.02	5.00	
59 Co	0.85	5.00	
115 In	4.25	5.00	
205 Tl	1.26	5.00	



7 Li
Mass Calib.
Actual: 6.95
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: 0.55
Required: 0.90
Flag:



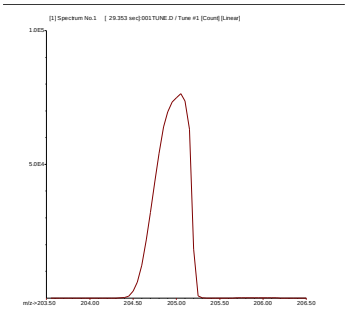
115 In

Mass Calib.

Actual:	115.00	
Required:	114.90 -	115.10
Flag:		

Peak Width

Actual:	0.55
Required:	0.90
Flag:	



205 Tl

Mass Calib.

Actual:	205.00	
Required:	204.90 -	205.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	

P/A Factor Tuning Report

Acquired:Aug 1 2014 00:04 pm

Mass[amu]	Element	P/A Factor
6	Li	0.070487
23	Na	0.085607
24	Mg	0.089440
27	Al	0.092148
39	K	0.092529
44	Ca	Sensitivity too low
45	Sc	0.093253
47	Ti	Sensitivity too low
51	V	0.095459
52	Cr	0.097696
55	Mn	0.099206
59	Co	0.102109
60	Ni	0.103759
63	Cu	0.105323
66	Zn	0.105208
72	Ge	0.104410
75	As	0.103463
78	Se	Sensitivity too low
88	Sr	0.104405
95	Mo	0.103440
106	(Cd)	0.108670
107	Ag	Sensitivity too low
108	(Cd)	0.108930
111	Cd	0.109977
115	In	0.109699
118	Sn	0.109457
121	Sb	0.109342
137	Ba	Sensitivity too low
205	Tl	0.116947
206	(Pb)	0.116814
207	(Pb)	0.117039
208	Pb	0.117170
209	Bi	0.116993
238		0.117030

===Detector Parameters===
Discriminator: 8.0 mV
Analog HV: 1710 V
Pulse HV: 1220 V

Calibration Blank QC Report

Acq. Method: DHL_3Fe.M Sample Name: BLANK STD 1
Operator: SW Instrument: ICPMS3
Last Cal. Update: Aug 01 2014 01:12 pm
Date Acquired: Aug 1 2014 01:09 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	4259.44	P	44.18	1.04
7	Li	2	45	1467.93	P	91.44	6.23
9	Be	2	45	32.22	P	10.71	33.24
11	B	2	45	2612.61	P	158.70	6.07
23	Na	1	45	19471.27	P	201.50	1.03
24	Mg	1	45	221.12	P	15.03	6.80
27	Al	1	45	215.12	P	18.49	8.60
39	K	1	45	7283.53	P	252.40	3.47
44	Ca	2	45	29776.49	P	463.00	1.55
45	Sc	1	---	152280.59	P	2747.00	1.80
45	Sc	2	---	5033455.00	A	29070.00	0.58
47	Ti	1	45	2.22	P	2.04	91.66
51	V	1	45	171.12	P	11.34	6.63
51	V	2	---		P		
52	Cr	1	45	710.25	P	15.16	2.13
55	Mn	1	45	58.22	P	18.15	31.17
56	Fe	1	72	3302.27	P	216.90	6.57
59	Co	1	72	64.00	P	8.33	13.01
60	Ni	1	72	276.01	P	21.46	7.78
60	Ni	2	---		P		
63	Cu	1	72	709.81	P	53.43	7.53
63	Cu	2	---		P		
66	Zn	1	72	279.56	P	36.82	13.17
66	Zn	2	---		P		
72	Ge	1	---	93230.46	P	1440.00	1.54
72	Ge	2	---		P		
75	As	1	72	22.26	P	1.22	5.48
78	Se	1	72	3.22	P	0.38	11.95
88	Sr	2	###	763.39	P	25.17	3.30
95	Mo	2	###	86.67	P	15.28	17.63
107	Ag	2	###	52.22	P	5.09	9.75
111	Cd	2	###	19.86	P	9.16	46.10
115	In	2	---	5857332.00	A	93570.00	1.60
118	Sn	2	###	1933.57	P	118.50	6.13
121	Sb	2	###	75.56	P	11.71	15.50
137	Ba	2	###	105.56	P	18.36	17.39
205	Tl	2	###	164.45	P	21.69	13.19
208	Pb	2	###	355.57	P	47.30	13.30
209	Bi	2	---	5068454.00	A	50240.00	0.99

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 1/20 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 1 2014 01:15 pm
Last Cal. Update: Aug 01 2014 01:13 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4450.58	P	86.75	1.95	
7	Li	2	45	1360.13	P	130.20	9.57	Fail
9	Be	2	45	2001.35	P	41.43	2.07	
11	B	2	45	3817.39	P	168.70	4.42	
23	Na	1	45	22995.12	P	292.60	1.27	
24	Mg	1	45	1641.28	P	93.25	5.68	
27	Al	1	45	704.92	P	30.12	4.27	
39	K	1	45	7956.21	P	178.00	2.24	
44	Ca	2	45	31930.83	P	851.60	2.67	
45	Sc	1	---	156778.91	P	2330.00	1.49	
45	Sc	2	---	5218695.00	A	12790.00	0.25	
47	Ti	1	45	21.33	P	2.31	10.82	
51	V	1	45	951.61	P	41.32	4.34	
51	V	2	---		P			
52	Cr	1	45	1761.49	P	92.89	5.27	
55	Mn	1	45	486.24	P	24.20	4.98	
56	Fe	1	72	19059.79	P	286.20	1.50	
59	Co	1	72	1839.28	P	46.01	2.50	
60	Ni	1	72	758.70	P	81.86	10.79	
60	Ni	2	---		P			
63	Cu	1	72	1901.07	P	18.11	0.95	
63	Cu	2	---		P			
66	Zn	1	72	342.68	P	15.14	4.42	
66	Zn	2	---		P			
72	Ge	1	---	95868.18	P	1063.00	1.11	
72	Ge	2	---		P			
75	As	1	72	119.26	P	5.89	4.94	
78	Se	1	72	8.85	P	0.06	0.72	
88	Sr	2	115	9759.88	P	330.00	3.38	
95	Mo	2	115	1717.97	P	40.06	2.33	
107	Ag	2	115	4050.85	P	295.00	7.28	
111	Cd	2	115	856.59	P	37.88	4.42	
115	In	2	---	5976509.00	A	59850.00	1.00	
118	Sn	2	115	3815.21	P	225.80	5.92	
121	Sb	2	115	3428.42	P	64.07	1.87	
137	Ba	2	115	1325.68	P	63.11	4.76	
205	Tl	2	209	7599.54	P	341.40	4.49	
208	Pb	2	209	10649.13	P	190.70	1.79	
209	Bi	2	---	5178263.00	A	55700.00	1.08	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4450.58	1.95	4259.45	104.5	70 - 120	
45	Sc	1	156778.95	1.49	152280.61	103.0	70 - 120	
45	Sc	2	5218694.50	0.25	5033455.00	103.7	70 - 120	
72	Ge	1	95868.18	1.11	93230.46	102.8	70 - 120	
115	In	2	5976509.50	1.00	5857332.00	102.0	70 - 120	
209	Bi	2	5178263.00	1.08	5068454.00	102.2	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 10/200 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 1 2014 01:21 pm
Last Cal. Update: Aug 01 2014 01:19 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4215.96	P	92.42	2.19	
7	Li	2	45	1361.24	P	74.27	5.46	Fail
9	Be	2	45	20208.92	P	476.50	2.36	Fail
11	B	2	45	14827.01	P	140.20	0.95	Fail
23	Na	1	45	51792.34	P	495.40	0.96	Fail
24	Mg	1	45	15121.86	P	371.00	2.45	Fail
27	Al	1	45	4873.47	P	184.90	3.79	Fail
39	K	1	45	16643.93	P	525.70	3.16	Fail
44	Ca	2	45	64424.24	P	888.00	1.38	Fail
45	Sc	1	---	156004.80	P	2843.00	1.82	
45	Sc	2	---	5170003.00	A	57970.00	1.12	
47	Ti	1	45	217.78	P	4.68	2.15	Fail
51	V	1	45	8330.92	P	266.30	3.20	Fail
51	V	2	---		P			
52	Cr	1	45	11295.52	P	466.90	4.13	Fail
55	Mn	1	45	4777.44	P	50.83	1.06	Fail
56	Fe	1	72	160949.00	P	5150.00	3.20	Fail
59	Co	1	72	17433.88	P	260.00	1.49	Fail
60	Ni	1	72	5132.70	P	38.90	0.76	Fail
60	Ni	2	---		P			
63	Cu	1	72	13968.08	P	291.20	2.08	Fail
63	Cu	2	---		P			
66	Zn	1	72	1794.83	P	23.37	1.30	Fail
66	Zn	2	---		P			
72	Ge	1	---	95146.78	P	2055.00	2.16	
72	Ge	2	---		P			
75	As	1	72	1005.49	P	39.06	3.88	Fail
78	Se	1	72	54.82	P	2.63	4.80	Fail
88	Sr	2	115	89274.65	P	1485.00	1.66	Fail
95	Mo	2	115	16024.54	P	359.70	2.24	Fail
107	Ag	2	115	40292.16	P	752.10	1.87	Fail
111	Cd	2	115	8390.22	P	178.60	2.13	Fail
115	In	2	---	5896651.00	A	69450.00	1.18	
118	Sn	2	115	25549.43	P	651.40	2.55	Fail
121	Sb	2	115	33325.38	P	299.00	0.90	Fail
137	Ba	2	115	12279.11	P	263.80	2.15	Fail
205	Tl	2	209	74951.03	P	947.20	1.26	Fail
208	Pb	2	209	103197.90	P	1845.00	1.79	Fail
209	Bi	2	---	5099348.00	A	75890.00	1.49	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4215.96	2.19	4259.45	99.0	70 - 120	
45	Sc	1	156004.80	1.82	152280.61	102.4	70 - 120	
45	Sc	2	5170003.00	1.12	5033455.00	102.7	70 - 120	
72	Ge	1	95146.78	2.16	93230.46	102.1	70 - 120	
115	In	2	5896651.00	1.18	5857332.00	100.7	70 - 120	
209	Bi	2	5099348.00	1.49	5068454.00	100.6	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 50/1000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 1 2014 01:27 pm
Last Cal. Update: Aug 01 2014 01:25 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4127.10	P	212.60	5.15	
7	Li	2	45	1333.46	P	8.82	0.66	Fail
9	Be	2	45	101496.10	P	439.60	0.43	Fail
11	B	2	45	63670.62	P	493.60	0.78	Fail
23	Na	1	45	182009.00	P	2648.00	1.45	Fail
24	Mg	1	45	74406.40	P	1759.00	2.36	Fail
27	Al	1	45	24197.26	P	657.40	2.72	Fail
39	K	1	45	57052.62	P	1283.00	2.25	Fail
44	Ca	2	45	207611.59	P	1322.00	0.64	Fail
45	Sc	1	---	160517.09	P	4379.00	2.73	
45	Sc	2	---	5127505.00	A	14980.00	0.29	
47	Ti	1	45	1078.29	P	14.87	1.38	Fail
51	V	1	45	41487.33	P	1266.00	3.05	Fail
51	V	2	---		P			
52	Cr	1	45	53427.90	P	1558.00	2.92	Fail
55	Mn	1	45	23826.33	P	1105.00	4.64	Fail
56	Fe	1	72	805869.50	P	27100.00	3.36	Fail
59	Co	1	72	87270.37	P	2299.00	2.63	
60	Ni	1	72	24805.17	P	498.80	2.01	Fail
60	Ni	2	---		P			
63	Cu	1	72	68263.59	P	1373.00	2.01	Fail
63	Cu	2	---		P			
66	Zn	1	72	8492.39	P	99.81	1.18	Fail
66	Zn	2	---		P			
72	Ge	1	---	98040.29	P	2280.00	2.33	
72	Ge	2	---		P			
75	As	1	72	5111.62	P	89.29	1.75	Fail
78	Se	1	72	278.26	P	11.83	4.25	Fail
88	Sr	2	115	441332.69	P	4481.00	1.02	Fail
95	Mo	2	115	81125.47	P	532.00	0.66	Fail
107	Ag	2	115	198176.50	P	1782.00	0.90	Fail
111	Cd	2	115	42475.56	P	780.30	1.84	Fail
115	In	2	---	5922552.00	A	31660.00	0.53	
118	Sn	2	115	124755.30	P	1311.00	1.05	Fail
121	Sb	2	115	166007.41	P	2785.00	1.68	Fail
137	Ba	2	115	61240.09	P	1064.00	1.74	Fail
205	Tl	2	209	371022.50	P	2998.00	0.81	Fail
208	Pb	2	209	510484.81	P	5845.00	1.15	Fail
209	Bi	2	---	5083702.00	A	64630.00	1.27	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4127.10	5.15	4259.45	96.9	70 - 120	
45	Sc	1	160517.08	2.73	152280.61	105.4	70 - 120	
45	Sc	2	5127505.00	0.29	5033455.00	101.9	70 - 120	
72	Ge	1	98040.29	2.33	93230.46	105.2	70 - 120	
115	In	2	5922552.00	0.53	5857332.00	101.1	70 - 120	
209	Bi	2	5083702.50	1.27	5068454.00	100.3	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 100/2000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 1 2014 01:33 pm
Last Cal. Update: Aug 01 2014 01:31 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4254.33	P	119.50	2.81	
7	Li	2	45	1300.12	P	74.24	5.71	Fail
9	Be	2	45	202989.09	P	3024.00	1.49	Fail
11	B	2	45	126781.80	P	716.40	0.57	Fail
23	Na	1	45	346324.19	P	4268.00	1.23	Fail
24	Mg	1	45	150712.70	P	2224.00	1.48	Fail
27	Al	1	45	48730.83	P	1243.00	2.55	Fail
39	K	1	45	106550.40	P	1442.00	1.35	Fail
44	Ca	2	45	385449.19	P	2163.00	0.56	Fail
45	Sc	1	---	161470.91	P	3216.00	1.99	
45	Sc	2	---	5099918.00	A	16160.00	0.32	
47	Ti	1	45	2163.78	P	30.91	1.43	
51	V	1	45	83018.11	P	1375.00	1.66	Fail
51	V	2	---		P			
52	Cr	1	45	106400.90	P	2371.00	2.23	Fail
55	Mn	1	45	47589.77	P	990.80	2.08	
56	Fe	1	72	1634627.00	A	38290.00	2.34	
59	Co	1	72	173986.00	P	3020.00	1.74	
60	Ni	1	72	49043.67	P	621.20	1.27	Fail
60	Ni	2	---		P			
63	Cu	1	72	135300.09	P	2109.00	1.56	Fail
63	Cu	2	---		P			
66	Zn	1	72	16657.26	P	212.40	1.28	Fail
66	Zn	2	---		P			
72	Ge	1	---	97872.47	P	1291.00	1.32	
72	Ge	2	---		P			
75	As	1	72	10125.36	P	160.00	1.58	Fail
78	Se	1	72	548.38	P	17.48	3.19	Fail
88	Sr	2	115	879415.63	P	2679.00	0.30	Fail
95	Mo	2	115	163229.70	P	1982.00	1.21	Fail
107	Ag	2	115	395286.09	P	1383.00	0.35	Fail
111	Cd	2	115	84312.73	P	603.80	0.72	Fail
115	In	2	---	5919328.00	A	47690.00	0.81	
118	Sn	2	115	249919.20	P	2454.00	0.98	Fail
121	Sb	2	115	331968.31	P	1784.00	0.54	Fail
137	Ba	2	115	122173.10	P	1641.00	1.34	Fail
205	Tl	2	209	749399.13	P	11250.00	1.50	Fail
208	Pb	2	209	1029001.00	P	13040.00	1.27	Fail
209	Bi	2	---	5101266.00	A	26470.00	0.52	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4254.32	2.81	4259.45	99.9	70 - 120	
45	Sc	1	161470.92	1.99	152280.61	106.0	70 - 120	
45	Sc	2	5099917.50	0.32	5033455.00	101.3	70 - 120	
72	Ge	1	97872.47	1.32	93230.46	105.0	70 - 120	
115	In	2	5919328.00	0.81	5857332.00	101.1	70 - 120	
209	Bi	2	5101266.00	0.52	5068454.00	100.6	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 250/5000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 1 2014 01:39 pm
Last Cal. Update: Aug 01 2014 01:37 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4146.73	P	146.70	3.54	
7	Li	2	45	1337.90	P	37.17	2.78	Fail
9	Be	2	45	506208.41	P	1923.00	0.38	Fail
11	B	2	45	309793.41	P	356.10	0.11	Fail
23	Na	1	45	836403.13	A	4362.00	0.52	Fail
24	Mg	1	45	367851.31	P	5063.00	1.38	
27	Al	1	45	119041.80	P	3176.00	2.67	Fail
39	K	1	45	249423.00	P	2352.00	0.94	Fail
44	Ca	2	45	950916.19	A	10350.00	1.09	Fail
45	Sc	1	---	158420.20	P	2197.00	1.39	
45	Sc	2	---	5055464.00	A	12050.00	0.24	
47	Ti	1	45	5325.66	P	209.80	3.94	
51	V	1	45	206037.30	P	3946.00	1.92	
51	V	2	---		A			
52	Cr	1	45	260300.70	P	5743.00	2.21	Fail
55	Mn	1	45	116848.00	P	2470.00	2.11	
56	Fe	1	72	3938857.00	A	101700.00	2.58	
59	Co	1	72	426870.59	P	5404.00	1.27	
60	Ni	1	72	120272.90	P	1017.00	0.85	Fail
60	Ni	2	---		P			
63	Cu	1	72	330649.81	P	2878.00	0.87	Fail
63	Cu	2	---		P			
66	Zn	1	72	40665.59	P	516.40	1.27	Fail
66	Zn	2	---		P			
72	Ge	1	---	95897.54	P	847.90	0.88	
72	Ge	2	---		P			
75	As	1	72	24728.85	P	344.20	1.39	
78	Se	1	72	1338.48	P	38.52	2.88	Fail
88	Sr	2	115	2233050.00	A	15190.00	0.68	Fail
95	Mo	2	115	403774.31	P	4283.00	1.06	Fail
107	Ag	2	115	976196.00	P	7134.00	0.73	Fail
111	Cd	2	115	209512.00	P	1794.00	0.86	Fail
115	In	2	---	5833772.00	A	32600.00	0.56	
118	Sn	2	115	621834.00	P	4425.00	0.71	Fail
121	Sb	2	115	824966.38	P	8059.00	0.98	Fail
137	Ba	2	115	304117.50	P	3326.00	1.09	Fail
205	Tl	2	209	1906639.00	A	24960.00	1.31	Fail
208	Pb	2	209	2578822.00	A	30100.00	1.17	Fail
209	Bi	2	---	4972969.00	A	60610.00	1.22	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4146.73	3.54	4259.45	97.4	70 - 120	
45	Sc	1	158420.22	1.39	152280.61	104.0	70 - 120	
45	Sc	2	5055464.50	0.24	5033455.00	100.4	70 - 120	
72	Ge	1	95897.54	0.88	93230.46	102.9	70 - 120	
115	In	2	5833772.50	0.56	5857332.00	99.6	70 - 120	
209	Bi	2	4972969.50	1.22	5068454.00	98.1	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 500/10000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 1 2014 01:45 pm
Last Cal. Update: Aug 01 2014 01:43 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4315.22	P	170.30	3.95	
7	Li	2	45	1330.12	P	59.26	4.46	Fail
9	Be	2	45	961928.63	A	10020.00	1.04	
11	B	2	45	626107.00	P	2851.00	0.46	Fail
23	Na	1	45	1635054.00	A	8660.00	0.53	Fail
24	Mg	1	45	726659.50	P	14640.00	2.01	
27	Al	1	45	233854.50	P	5282.00	2.26	
39	K	1	45	489477.00	P	10580.00	2.16	Fail
44	Ca	2	45	1860240.00	A	11870.00	0.64	Fail
45	Sc	1	---	158930.50	P	2433.00	1.53	
45	Sc	2	---	5200128.00	A	24960.00	0.48	
47	Ti	1	45	10731.45	P	154.40	1.44	
51	V	1	45	407621.00	P	8034.00	1.97	
51	V	2	---		A			
52	Cr	1	45	515552.00	P	10580.00	2.05	Fail
55	Mn	1	45	231017.30	P	4403.00	1.91	
56	Fe	1	72	7622961.00	A	120700.00	1.58	
59	Co	1	72	850856.63	P	9687.00	1.14	
60	Ni	1	72	239319.50	P	2828.00	1.18	
60	Ni	2	---		P			
63	Cu	1	72	654293.50	P	10410.00	1.59	
63	Cu	2	---		A			
66	Zn	1	72	80552.24	P	1585.00	1.97	Fail
66	Zn	2	---		P			
72	Ge	1	---	96157.63	P	1316.00	1.37	
72	Ge	2	---		P			
75	As	1	72	49240.96	P	721.80	1.47	
78	Se	1	72	2652.29	P	53.58	2.02	
88	Sr	2	115	4406090.00	A	20150.00	0.46	Fail
95	Mo	2	115	819765.00	P	4653.00	0.57	Fail
107	Ag	2	115	1998354.00	A	12600.00	0.63	
111	Cd	2	115	420606.91	P	2264.00	0.54	Fail
115	In	2	---	5915160.00	A	77420.00	1.31	
118	Sn	2	115	1288994.00	A	5330.00	0.41	Fail
121	Sb	2	115	1715091.00	A	12820.00	0.75	Fail
137	Ba	2	115	611639.88	P	4365.00	0.71	Fail
205	Tl	2	209	3746408.00	A	6976.00	0.19	Fail
208	Pb	2	209	5234078.00	A	21890.00	0.42	Fail
209	Bi	2	---	5065732.00	A	18450.00	0.36	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4315.22	3.95	4259.45	101.3	70 - 120	
45	Sc	1	158930.48	1.53	152280.61	104.4	70 - 120	
45	Sc	2	5200128.50	0.48	5033455.00	103.3	70 - 120	
72	Ge	1	96157.63	1.37	93230.46	103.1	70 - 120	
115	In	2	5915160.50	1.31	5857332.00	101.0	70 - 120	
209	Bi	2	5065732.50	0.36	5068454.00	99.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 2000/25000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 1 2014 01:51 pm
Last Cal. Update: Aug 01 2014 01:49 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4222.59	P	112.50	2.66	
7	Li	2	45	1402.36	P	38.64	2.76	Fail
9	Be	2	45	3495849.00	A	9097.00	0.26	
11	B	2	45	2252936.00	A	12350.00	0.55	Fail
23	Na	1	45	3889340.00	A	38080.00	0.98	Fail
24	Mg	1	45	1822061.00	A	25470.00	1.40	
27	Al	1	45	517.36	P	95.02	18.37	Fail
39	K	1	45	1208031.00	A	28240.00	2.34	Fail
44	Ca	2	45	4374781.00	A	27030.00	0.62	Fail
45	Sc	1	---	159825.91	P	2476.00	1.55	
45	Sc	2	---	5186987.00	A	43680.00	0.84	
47	Ti	1	45	39874.75	P	963.00	2.42	
51	V	1	45	1593470.00	A	35140.00	2.21	
51	V	2	---		A			
52	Cr	1	45	1982560.00	A	37480.00	1.89	
55	Mn	1	45	871399.19	P	17790.00	2.04	
56	Fe	1	72	13192.71	P	2033.00	15.41	Fail
59	Co	1	72	3179776.00	A	71080.00	2.24	
60	Ni	1	72	891367.00	P	10780.00	1.21	
60	Ni	2	---		A			
63	Cu	1	72	2454173.00	A	14580.00	0.59	
63	Cu	2	---		A			
66	Zn	1	72	300294.31	P	4701.00	1.57	
66	Zn	2	---		A			
72	Ge	1	---	96357.13	P	818.90	0.85	
72	Ge	2	---		P			
75	As	1	72	187920.00	P	2581.00	1.37	
78	Se	1	72	10073.36	P	220.50	2.19	
88	Sr	2	115	16253790.00	A	166800.00	1.03	Fail
95	Mo	2	115	3110574.00	A	49790.00	1.60	
107	Ag	2	115	1821.42	P	565.60	31.05	Fail
111	Cd	2	115	1607583.00	A	14800.00	0.92	
115	In	2	---	5899714.00	A	36560.00	0.62	
118	Sn	2	115	4582644.00	A	9631.00	0.21	Fail
121	Sb	2	115	1850.31	P	454.20	24.55	Fail
137	Ba	2	115	2351662.00	A	21340.00	0.91	Fail
205	Tl	2	209	13837110.00	A	101200.00	0.73	
208	Pb	2	209	18905600.00	A	73930.00	0.39	
209	Bi	2	---	4995840.00	A	66680.00	1.33	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4222.59	2.66	4259.45	99.1	70 - 120	
45	Sc	1	159825.91	1.55	152280.61	105.0	70 - 120	
45	Sc	2	5186987.00	0.84	5033455.00	103.1	70 - 120	
72	Ge	1	96357.13	0.85	93230.46	103.4	70 - 120	
115	In	2	5899714.50	0.62	5857332.00	100.7	70 - 120	
209	Bi	2	4995840.50	1.33	5068454.00	98.6	70 - 120	

ICSA QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\014ICSA.D\014ICSA.D#

Date Acquired:	Aug 1 2014 02:09 pm	Sample Name:	**ICSA-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	1323.000	ppb	6.26	8.00	5.00	FailSoil
9	Be	2	45	0.239	ppb	18.91	0.32	0.80	
11	B	2	45	10.380	ppb	1.54	30.00	30.00	
23	Na	1	45	103800.000	ppb	1.86	#######	#######	
24	Mg	1	45	103200.000	ppb	3.08	#######	#######	
27	Al	1	45	99670.000	ppb	2.66	#######	#######	
39	K	1	45	104600.000	ppb	1.82	#######	#######	
44	Ca	2	45	102400.000	ppb	0.71	#######	#######	
47	Ti	1	45	2052.000	ppb	3.26	10.00	10.00	
51	V	1	45	0.278	ppb	15.19	10.00	10.00	
52	Cr	1	45	0.701	ppb	8.01	8.00	5.00	
55	Mn	1	45	2.626	ppb	9.56	8.00	10.00	
56	Fe	1	72	93240.000	ppb	2.67	#######	#######	
59	Co	1	72	0.896	ppb	14.67	8.00	10.00	
60	Ni	1	72	0.573	ppb	13.99	8.00	10.00	
63	Cu	1	72	1.009	ppb	2.27	8.00	10.00	
66	Zn	1	72	1.520	ppb	5.74	10.00	5.00	
75	As	1	72	0.772	ppb	13.00	4.00	5.00	
78	Se	1	72	0.933	ppb	11.87	2.00	5.00	
88	Sr	2	115	0.697	ppb	6.66	10.00	10.00	
95	Mo	2	115	1956.000	ppb	0.84	8.00	5.00	
107	Ag	2	115	0.196	ppb	12.39	0.80	2.00	
111	Cd	2	115	0.736	ppb	17.90	1.20	1.00	
118	Sn	2	115	0.008	ppb	4.78	10.00	10.00	
121	Sb	2	115	0.735	ppb	5.76	4.00	2.50	
137	Ba	2	115	0.590	ppb	9.27	8.00	10.00	
205	Tl	2	209	0.410	ppb	13.65	4.00	1.50	
208	Pb	2	209	0.711	ppb	7.32	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3999.92	1.68	4259.45	93.9	70 - 120	
45	Sc	1	158889.19	2.44	152280.61	104.3	70 - 120	
45	Sc	2	4972369.50	0.70	5033455.00	98.8	70 - 120	
72	Ge	1	95686.96	2.14	93230.46	102.6	70 - 120	
115	In	2	5460468.50	1.78	5857332.00	93.2	70 - 120	
209	Bi	2	4580930.50	1.36	5068454.00	90.4	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\015ICSB.D\015ICSB.D#

Date Acquired:	Aug 1 2014 02:15 pm	Sample Name:	**ICSAB-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	1224.00	ppb	1.36	---	80 -		120	
9	Be	2	45	0.19	ppb	19.95	---	80 -		120	
11	B	2	45	7.99	ppb	2.88	---	80 -		120	
23	Na	1	45	104100.00	ppb	2.45	100000.00	80 -		120	
24	Mg	1	45	102600.00	ppb	3.17	100000.00	80 -		120	
27	Al	1	45	97640.00	ppb	3.72	100000.00	80 -		120	
39	K	1	45	103900.00	ppb	2.68	100000.00	80 -		120	
44	Ca	2	45	102500.00	ppb	0.56	100000.00	80 -		120	
47	Ti	1	45	2065.00	ppb	2.98	---	80 -		120	
51	V	1	45	39.57	ppb	2.94	40.00	80 -		120	
52	Cr	1	45	20.15	ppb	1.64	20.00	80 -		120	
55	Mn	1	45	21.95	ppb	2.04	20.00	80 -		120	
56	Fe	1	72	93080.00	ppb	3.15	100000.00	80 -		120	
59	Co	1	72	39.85	ppb	3.10	40.00	80 -		120	
60	Ni	1	72	38.77	ppb	3.18	40.00	80 -		120	
63	Cu	1	72	19.85	ppb	2.29	20.00	80 -		120	
66	Zn	1	72	19.82	ppb	1.30	20.00	80 -		120	
75	As	1	72	20.81	ppb	2.56	20.00	80 -		120	
78	Se	1	72	20.03	ppb	2.30	20.00	80 -		120	
88	Sr	2	115	1.85	ppb	2.40	---	80 -		120	
95	Mo	2	115	1939.00	ppb	1.29	---	80 -		120	
107	Ag	2	115	18.58	ppb	1.02	20.00	80 -		120	
111	Cd	2	115	10.17	ppb	3.56	10.00	80 -		120	
118	Sn	2	115	-0.22	ppb	8.30	---	80 -		120	
121	Sb	2	115	0.45	ppb	2.28	---	80 -		120	
137	Ba	2	115	0.42	ppb	13.78	---	80 -		120	
205	Tl	2	209	0.23	ppb	5.64	---	80 -		120	
208	Pb	2	209	0.44	ppb	2.92	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3844.60	3.51	4259.45	90.3	70 -		120	
45	Sc	1	158513.77	2.16	152280.61	104.1	70 -		120	
45	Sc	2	4977236.50	0.78	5033455.00	98.9	70 -		120	
72	Ge	1	95167.68	2.15	93230.46	102.1	70 -		120	
115	In	2	5510198.00	2.19	5857332.00	94.1	70 -		120	
209	Bi	2	4602598.50	1.67	5068454.00	90.8	70 -		120	

CCV QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\022ICV.D\022ICV.D#

Date Acquired:	Aug 1 2014 02:57 pm	Sample Name:	**ICV1-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag	
7	Li	2	45	-3808.00	ppb	4.28	100.00	90 -	110	######	Fail	
9	Be	2	45	101.90	ppb	1.27	100.00	90 -	110	101.9		
11	B	2	45	107.50	ppb	0.88	100.00	90 -	110	107.5		
23	Na	1	45	2755.00	ppb	2.26	2500.00	90 -	110	110.2	Fail	ROUNDS TO 110%
24	Mg	1	45	2700.00	ppb	3.08	2500.00	90 -	110	108.0		
27	Al	1	45	2433.00	ppb	3.37	2500.00	90 -	110	97.3		
39	K	1	45	2683.00	ppb	2.43	2500.00	90 -	110	107.3		
44	Ca	2	45	2566.00	ppb	1.02	2500.00	90 -	110	102.6		
47	Ti	1	45	102.70	ppb	3.56	100.00	90 -	110	102.7		
51	V	1	45	96.57	ppb	3.55	100.00	90 -	110	96.6		
52	Cr	1	45	100.90	ppb	3.23	100.00	90 -	110	100.9		
55	Mn	1	45	99.44	ppb	2.93	100.00	90 -	110	99.4		
56	Fe	1	72	2546.00	ppb	2.74	2500.00	90 -	110	101.8		
59	Co	1	72	104.80	ppb	2.40	100.00	90 -	110	104.8		
60	Ni	1	72	103.50	ppb	2.16	100.00	90 -	110	103.5		
63	Cu	1	72	102.20	ppb	2.15	100.00	90 -	110	102.2		
66	Zn	1	72	98.90	ppb	2.10	100.00	90 -	110	98.9		
75	As	1	72	98.76	ppb	2.86	100.00	90 -	110	98.8		
78	Se	1	72	97.79	ppb	4.09	100.00	90 -	110	97.8		
88	Sr	2	115	98.72	ppb	1.82	100.00	90 -	110	98.7		
95	Mo	2	115	89.46	ppb	1.30	100.00	90 -	110	89.5	Fail	
107	Ag	2	115	94.13	ppb	1.82	100.00	90 -	110	94.1		
111	Cd	2	115	95.95	ppb	2.39	100.00	90 -	110	96.0		
118	Sn	2	115	99.63	ppb	1.64	100.00	90 -	110	99.6		
121	Sb	2	115	92.25	ppb	2.00	100.00	90 -	110	92.3		
137	Ba	2	115	95.84	ppb	2.06	100.00	90 -	110	95.8		
205	Tl	2	209	99.45	ppb	1.35	100.00	90 -	110	99.5		
208	Pb	2	209	101.10	ppb	1.83	100.00	90 -	110	101.1		

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4391.48	3.29	4259.45	103.1	70 -	120		
45	Sc	1	164476.08	1.78	152280.61	108.0	70 -	120		
45	Sc	2	5166355.50	0.98	5033455.00	102.6	70 -	120		
72	Ge	1	99021.13	1.33	93230.46	106.2	70 -	120		
115	In	2	5947725.50	1.24	5857332.00	101.5	70 -	120		
209	Bi	2	5034593.00	0.73	5068454.00	99.3	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\023LCVL.D\023LCVL.D#

Date Acquired:	Aug 1 2014 03:03 pm	Sample Name:	**ILCVL-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	5389.00	ppb	5.68	5.00	70 -	130	######	Fail
9	Be	2	45	1.23	ppb	2.97	1.00	70 -	130	122.8	
11	B	2	45	25.85	ppb	0.54	20.00	70 -	130	129.3	
23	Na	1	45	119.60	ppb	2.16	100.00	70 -	130	119.6	
24	Mg	1	45	111.10	ppb	6.99	100.00	70 -	130	111.1	
27	Al	1	45	106.30	ppb	5.44	100.00	70 -	130	106.3	
39	K	1	45	99.70	ppb	2.23	100.00	70 -	130	99.7	
44	Ca	2	45	28.47	ppb	1.92	100.00	70 -	130	28.5	Fail
47	Ti	1	45	5.73	ppb	8.50	5.00	70 -	130	114.6	
51	V	1	45	1.17	ppb	3.57	1.00	70 -	130	116.7	
52	Cr	1	45	5.81	ppb	2.53	5.00	70 -	130	116.1	
55	Mn	1	45	5.69	ppb	2.61	5.00	70 -	130	113.8	
56	Fe	1	72	109.30	ppb	2.59	100.00	70 -	130	109.3	
59	Co	1	72	5.75	ppb	2.09	5.00	70 -	130	114.9	
60	Ni	1	72	5.67	ppb	3.15	5.00	70 -	130	113.5	
63	Cu	1	72	5.48	ppb	1.73	5.00	70 -	130	109.7	
66	Zn	1	72	4.88	ppb	4.01	5.00	70 -	130	97.5	
75	As	1	72	5.69	ppb	2.34	5.00	70 -	130	113.8	
78	Se	1	72	5.73	ppb	5.79	5.00	70 -	130	114.5	
88	Sr	2	115	5.53	ppb	1.31	5.00	70 -	130	110.6	
95	Mo	2	115	5.54	ppb	0.14	5.00	70 -	130	110.7	
107	Ag	2	115	2.20	ppb	1.39	2.00	70 -	130	109.8	
111	Cd	2	115	1.22	ppb	9.08	1.00	70 -	130	121.7	
118	Sn	2	115	5.04	ppb	0.54	5.00	70 -	130	100.8	
121	Sb	2	115	2.15	ppb	2.49	2.00	70 -	130	107.6	
137	Ba	2	115	5.37	ppb	1.03	5.00	70 -	130	107.4	
205	Tl	2	209	1.28	ppb	1.39	1.00	70 -	130	128.3	
208	Pb	2	209	1.22	ppb	1.95	1.00	70 -	130	121.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	4385.81	1.06	4259.45	103.0	70 -	120	
45	Sc	1	160430.23	2.16	152280.61	105.4	70 -	120	
45	Sc	2	5030206.00	0.75	5033455.00	99.9	70 -	120	
72	Ge	1	98720.38	1.51	93230.46	105.9	70 -	120	
115	In	2	5804493.00	1.06	5857332.00	99.1	70 -	120	
209	Bi	2	4968857.00	1.51	5068454.00	98.0	70 -	120	

ICB QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\024_ICB.D\024_ICB.D#

Date Acquired:	Aug 1 2014 03:10 pm	Sample Name:	**ICB1-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Instrument:	ICPMS3

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	5766.00	ppb	4.60	5.00	Fail
9	Be	2	45	0.05	ppb	5.73	0.80	
11	B	2	45	1.91	ppb	2.33	10.00	
23	Na	1	45	4.07	ppb	1.94	50.00	
24	Mg	1	45	0.57	ppb	8.44	50.00	
27	Al	1	45	-2.09	ppb	5.67	30.00	
39	K	1	45	-9.38	ppb	2.10	50.00	
44	Ca	2	45	-84.62	ppb	2.25	50.00	
47	Ti	1	45	0.02	ppb	132.30	10.00	
51	V	1	45	0.01	ppb	14.25	10.00	
52	Cr	1	45	0.01	ppb	5.80	3.00	
55	Mn	1	45	0.05	ppb	12.50	10.00	
56	Fe	1	72	2.14	ppb	7.44	50.00	
59	Co	1	72	0.06	ppb	10.59	3.00	
60	Ni	1	72	-0.03	ppb	3.76	3.00	
63	Cu	1	72	-0.19	ppb	4.34	3.00	
66	Zn	1	72	-1.00	ppb	16.14	10.00	
75	As	1	72	0.15	ppb	6.30	10.00	
78	Se	1	72	0.25	ppb	15.61	10.00	
88	Sr	2	115	0.01	ppb	8.51	10.00	
95	Mo	2	115	0.44	ppb	8.15	10.00	
107	Ag	2	115	0.04	ppb	27.92	2.00	
111	Cd	2	115	0.02	ppb	45.09	1.00	
118	Sn	2	115	-0.57	ppb	7.21	10.00	
121	Sb	2	115	0.05	ppb	20.61	1.00	
137	Ba	2	115	0.01	ppb	22.68	3.00	
205	Tl	2	209	0.10	ppb	4.97	1.00	
208	Pb	2	209	0.06	ppb	13.14	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4410.25	2.48	4259.45	103.5	70 - 120	
45	Sc	1	161404.42	2.89	152280.61	106.0	70 - 120	
45	Sc	2	5054402.50	0.98	5033455.00	100.4	70 - 120	
72	Ge	1	98931.31	1.84	93230.46	106.1	70 - 120	
115	In	2	5770084.00	1.44	5857332.00	98.5	70 - 120	
209	Bi	2	4983165.50	1.67	5068454.00	98.3	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\025__PB.D\025__PB.D#

Date Acquired:	Aug 1 2014 03:16 pm	Sample Name:	**MB-64972**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLK6020A_DW
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	5640.000	ppb	1.86	2.0	5.00	Fail
9	Be	2	45	0.034	ppb	8.30	0.3	0.80	
11	B	2	45	1.303	ppb	2.12	10.0	30.00	
23	Na	1	45	-1.135	ppb	2.95	100.0	#####	
24	Mg	1	45	3.020	ppb	16.50	100.0	#####	
27	Al	1	45	-0.869	ppb	9.48	10.0	30.00	
39	K	1	45	-18.670	ppb	1.71	100.0	#####	
44	Ca	2	45	-83.360	ppb	0.70	100.0	#####	
47	Ti	1	45	-0.012	ppb	91.66	3.0	10.00	
51	V	1	45	0.005	ppb	4.78	3.0	10.00	
52	Cr	1	45	-0.044	ppb	2.57	2.0	5.00	
55	Mn	1	45	0.004	ppb	10.20	3.0	10.00	
56	Fe	1	72	1.228	ppb	1.76	50.0	#####	
59	Co	1	72	0.023	ppb	10.10	3.0	10.00	
60	Ni	1	72	-0.084	ppb	6.51	3.0	10.00	
63	Cu	1	72	-0.196	ppb	2.63	2.0	10.00	
66	Zn	1	72	-0.306	ppb	11.64	2.0	5.00	
75	As	1	72	0.105	ppb	0.67	2.0	5.00	
78	Se	1	72	0.022	ppb	10.86	2.0	5.00	
88	Sr	2	115	0.014	ppb	7.80	3.0	10.00	
95	Mo	2	115	0.285	ppb	3.08	2.0	5.00	
107	Ag	2	115	0.017	ppb	13.45	1.0	2.00	
111	Cd	2	115	0.027	ppb	34.79	0.3	1.00	
118	Sn	2	115	-0.566	ppb	11.74	3.0	10.00	
121	Sb	2	115	0.036	ppb	16.10	0.8	2.50	
137	Ba	2	115	-0.010	ppb	17.41	3.0	10.00	
205	Tl	2	209	0.054	ppb	19.38	0.5	1.50	
208	Pb	2	209	0.033	ppb	11.22	0.3	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4491.63	1.32	4259.45	105.5	70 - 120	
45	Sc	1	165698.30	2.62	152280.61	108.8	70 - 120	
45	Sc	2	5261006.50	0.82	5033455.00	104.5	70 - 120	
72	Ge	1	100680.07	1.16	93230.46	108.0	70 - 120	
115	In	2	5934610.50	1.17	5857332.00	101.3	70 - 120	
209	Bi	2	5062217.00	1.04	5068454.00	99.9	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\027_LCS.D\027_LCS.D#

Date Acquired:	Aug 1 2014 03:28 pm	Sample Name:	**LCS-64972**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS 6020A_DW
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	5156.00	ppb	1.49	200.00	80 -	120	2578.0	Fail
9	Be	2	45	212.20	ppb	0.92	200.00	80 -	120	106.1	
11	B	2	45	217.90	ppb	0.90	200.00	80 -	120	109.0	
23	Na	1	45	5370.00	ppb	1.88	5000.00	80 -	120	107.4	
24	Mg	1	45	5071.00	ppb	2.83	5000.00	80 -	120	101.4	
27	Al	1	45	4950.00	ppb	3.16	5000.00	80 -	120	99.0	
39	K	1	45	5111.00	ppb	1.74	5000.00	80 -	120	102.2	
44	Ca	2	45	5224.00	ppb	1.36	5000.00	80 -	120	104.5	
47	Ti	1	45	207.10	ppb	1.90	200.00	80 -	120	103.6	
51	V	1	45	203.90	ppb	2.60	200.00	80 -	120	102.0	
52	Cr	1	45	208.60	ppb	2.58	200.00	80 -	120	104.3	
55	Mn	1	45	210.10	ppb	2.95	200.00	80 -	120	105.1	
56	Fe	1	72	5088.00	ppb	2.21	5000.00	80 -	120	101.8	
59	Co	1	72	214.10	ppb	2.21	200.00	80 -	120	107.1	
60	Ni	1	72	215.60	ppb	2.05	200.00	80 -	120	107.8	
63	Cu	1	72	213.10	ppb	1.62	200.00	80 -	120	106.6	
66	Zn	1	72	211.30	ppb	2.76	200.00	80 -	120	105.7	
75	As	1	72	208.60	ppb	2.58	200.00	80 -	120	104.3	
78	Se	1	72	207.40	ppb	3.48	200.00	80 -	120	103.7	
88	Sr	2	115	213.50	ppb	1.87	200.00	80 -	120	106.8	
95	Mo	2	115	194.60	ppb	1.83	200.00	80 -	120	97.3	
107	Ag	2	115	197.60	ppb	1.41	200.00	80 -	120	98.8	
111	Cd	2	115	204.60	ppb	1.48	200.00	80 -	120	102.3	
118	Sn	2	115	207.90	ppb	1.70	200.00	80 -	120	104.0	
121	Sb	2	115	192.70	ppb	1.60	200.00	80 -	120	96.4	
137	Ba	2	115	202.80	ppb	1.81	200.00	80 -	120	101.4	
205	Tl	2	209	216.10	ppb	1.90	200.00	80 -	120	108.1	
208	Pb	2	209	209.00	ppb	1.71	200.00	80 -	120	104.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4307.43	3.23	4259.45	101.1	70 -	120		
45	Sc	1	165855.27	1.62	152280.61	108.9	70 -	120		
45	Sc	2	5165906.00	0.72	5033455.00	102.6	70 -	120		
72	Ge	1	99955.20	1.26	93230.46	107.2	70 -	120		
115	In	2	5861379.50	1.40	5857332.00	100.1	70 -	120		
209	Bi	2	4949941.50	1.27	5068454.00	97.7	70 -	120		

LCS QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\028_LCS.D\028_LCS.D#

Date Acquired:	Aug 1 2014 03:34 pm	Sample Name:	**LCSD-64972**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSD6020A_DW
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	4514.00	ppb	7.42	200.00	80 -	120	2257.0	Fail
9	Be	2	45	211.30	ppb	0.45	200.00	80 -	120	105.7	
11	B	2	45	219.20	ppb	0.55	200.00	80 -	120	109.6	
23	Na	1	45	5389.00	ppb	1.38	5000.00	80 -	120	107.8	
24	Mg	1	45	5117.00	ppb	2.77	5000.00	80 -	120	102.3	
27	Al	1	45	5091.00	ppb	3.17	5000.00	80 -	120	101.8	
39	K	1	45	5225.00	ppb	2.68	5000.00	80 -	120	104.5	
44	Ca	2	45	5338.00	ppb	1.07	5000.00	80 -	120	106.8	
47	Ti	1	45	208.00	ppb	2.25	200.00	80 -	120	104.0	
51	V	1	45	207.10	ppb	1.99	200.00	80 -	120	103.6	
52	Cr	1	45	209.40	ppb	2.41	200.00	80 -	120	104.7	
55	Mn	1	45	212.80	ppb	2.58	200.00	80 -	120	106.4	
56	Fe	1	72	5134.00	ppb	2.50	5000.00	80 -	120	102.7	
59	Co	1	72	214.10	ppb	1.83	200.00	80 -	120	107.1	
60	Ni	1	72	214.90	ppb	1.79	200.00	80 -	120	107.5	
63	Cu	1	72	213.70	ppb	1.25	200.00	80 -	120	106.9	
66	Zn	1	72	214.00	ppb	2.20	200.00	80 -	120	107.0	
75	As	1	72	212.40	ppb	2.22	200.00	80 -	120	106.2	
78	Se	1	72	211.10	ppb	4.56	200.00	80 -	120	105.6	
88	Sr	2	115	212.20	ppb	0.82	200.00	80 -	120	106.1	
95	Mo	2	115	196.60	ppb	1.27	200.00	80 -	120	98.3	
107	Ag	2	115	200.50	ppb	1.52	200.00	80 -	120	100.3	
111	Cd	2	115	205.20	ppb	0.60	200.00	80 -	120	102.6	
118	Sn	2	115	208.70	ppb	0.17	200.00	80 -	120	104.4	
121	Sb	2	115	195.80	ppb	0.90	200.00	80 -	120	97.9	
137	Ba	2	115	203.70	ppb	1.46	200.00	80 -	120	101.9	
205	Tl	2	209	215.30	ppb	1.10	200.00	80 -	120	107.7	
208	Pb	2	209	209.80	ppb	1.26	200.00	80 -	120	104.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	4426.72	0.87	4259.45	103.9	70 -	120	
45	Sc	1	167274.80	2.44	152280.61	109.8	70 -	120	
45	Sc	2	5139213.50	0.68	5033455.00	102.1	70 -	120	
72	Ge	1	100821.97	1.49	93230.46	108.1	70 -	120	
115	In	2	5778478.50	0.75	5857332.00	98.7	70 -	120	
209	Bi	2	4949068.00	1.36	5068454.00	97.6	70 -	120	

DT QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\031DT1.D\031DT1.D#

Date Acquired:	Aug 1 2014 03:52 pm	Sample Name:	**1407346-02B SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD 6020A_DW
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	~~1.00~~ 5

QC Elements

Element			Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7 Li	2	45	-186500.00	ppb	0.51	3874.76	90 - 110	######	
9 Be	2	45	0.04	ppb	37.49	0.10	90 - 110	187.8	
11 B	2	45	28.96	ppb	0.31	131.40	90 - 110	110.2	
23 Na	1	45	27860.00	ppb	1.36	132900.00	90 - 110	104.8	GOOD
24 Mg	1	45	5685.00	ppb	2.29	27620.00	90 - 110	102.9	GOOD
27 Al	1	45	2.73	ppb	2.08	9.79	90 - 110	139.6	
39 K	1	45	106.60	ppb	1.34	542.20	90 - 110	98.3	GOOD
44 Ca	2	45	34790.00	ppb	0.27	168600.00	90 - 110	103.2	GOOD
47 Ti	1	45	0.01	ppb	86.59	0.22	90 - 110	25.8	
51 V	1	45	0.31	ppb	4.22	1.39	90 - 110	110.8	
52 Cr	1	45	0.01	ppb	4.72	0.09	90 - 110	75.8	
55 Mn	1	45	107.00	ppb	2.60	512.40	90 - 110	104.4	GOOD
56 Fe	1	72	3.23	ppb	9.94	12.31	90 - 110	131.4	
59 Co	1	72	0.55	ppb	4.27	2.56	90 - 110	108.3	GOOD
60 Ni	1	72	0.63	ppb	6.24	3.07	90 - 110	103.0	GOOD
63 Cu	1	72	0.05	ppb	1.89	1.07	90 - 110	22.5	
66 Zn	1	72	-0.40	ppb	2.28	1.70	90 - 110	-116.5	
75 As	1	72	0.38	ppb	5.21	1.50	90 - 110	128.2	
78 Se	1	72	0.17	ppb	8.31	0.38	90 - 110	216.8	
88 Sr	2	115	146.60	ppb	1.77	699.90	90 - 110	104.7	GOOD
95 Mo	2	115	0.41	ppb	13.13	1.17	90 - 110	178.1	
107 Ag	2	115	0.02	ppb	51.48	0.05	90 - 110	188.1	
111 Cd	2	115	0.03	ppb	49.40	0.08	90 - 110	164.1	
118 Sn	2	115	-0.56	ppb	15.10	-0.47	90 - 110	603.7	
121 Sb	2	115	0.08	ppb	20.78	0.22	90 - 110	185.7	
137 Ba	2	115	53.73	ppb	1.40	267.20	90 - 110	100.5	GOOD
205 Tl	2	209	0.07	ppb	17.43	0.15	90 - 110	234.6	
208 Pb	2	209	0.07	ppb	11.61	0.21	90 - 110	172.2	

ISTD Elements

Element		CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2	3874.76	2.26	4259.45	91.0	70 - 120	
45 Sc	1	163376.20	1.85	152280.61	107.3	70 - 120	
45 Sc	2	5038254.00	0.24	5033455.00	100.1	70 - 120	
72 Ge	1	99219.93	1.44	93230.46	106.4	70 - 120	
115 In	2	5784448.00	0.48	5857332.00	98.8	70 - 120	
209 Bi	2	4832370.50	0.66	5068454.00	95.3	70 - 120	

PDS QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\041_PDS.D\041_PDS.D#

Date Acquired:	Aug 1 2014 04:52 pm	Sample Name:	**1407346-02B PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS 6020A_DW
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	-875700.00	ppb	1.49	2176.96	200	75-125	######	Fail
9	Be	2	45	201.70	ppb	0.95	0.10	200	75-125	100.8	
11	B	2	45	334.10	ppb	0.69	131.40	200	75-125	101.4	
23	Na	1	45	131800.00	ppb	1.89	132900.00	5000	75-125	-22.0	Fail
24	Mg	1	45	31570.00	ppb	2.62	27620.00	5000	75-125	79.0	
27	Al	1	45	4934.00	ppb	4.16	9.79	5000	75-125	98.5	
39	K	1	45	5937.00	ppb	3.46	542.20	5000	75-125	107.9	
44	Ca	2	45	166600.00	ppb	0.44	168600.00	5000	75-125	-40.0	Fail
47	Ti	1	45	197.50	ppb	5.25	0.22	200	75-125	98.6	
51	V	1	45	194.90	ppb	3.01	1.39	200	75-125	96.8	
52	Cr	1	45	195.50	ppb	3.21	0.09	200	75-125	97.7	
55	Mn	1	45	674.90	ppb	3.07	512.40	200	75-125	81.2	
56	Fe	1	72	4878.00	ppb	2.81	12.31	5000	75-125	97.3	
59	Co	1	72	200.70	ppb	2.47	2.56	200	75-125	99.1	
60	Ni	1	72	196.00	ppb	2.70	3.07	200	75-125	96.5	
63	Cu	1	72	190.90	ppb	1.97	1.07	200	75-125	94.9	
66	Zn	1	72	193.30	ppb	1.93	1.70	200	75-125	95.8	
75	As	1	72	203.90	ppb	2.52	1.50	200	75-125	101.2	
78	Se	1	72	197.60	ppb	4.77	0.38	200	75-125	98.6	
88	Sr	2	115	879.30	ppb	1.05	699.90	200	75-125	89.7	
95	Mo	2	115	186.30	ppb	1.18	1.17	200	75-125	92.6	
107	Ag	2	115	183.80	ppb	0.59	0.05	200	75-125	91.9	
111	Cd	2	115	192.70	ppb	1.33	0.08	200	75-125	96.3	
118	Sn	2	115	207.00	ppb	1.38	-0.47	200	75-125	103.7	
121	Sb	2	115	177.50	ppb	0.74	0.22	200	75-125	88.6	
137	Ba	2	115	456.50	ppb	1.24	267.20	200	75-125	94.6	
205	Tl	2	209	208.20	ppb	1.46	0.15	200	75-125	104.0	
208	Pb	2	209	205.50	ppb	1.55	0.21	200	75-125	102.6	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	RHig	2176.96	8.86	4259.45	51.1	70	-	120	ISFail
45	Sc	1		156181.73	2.40	152280.61	102.6	70	-	120	
45	Sc	2		4751949.00	0.45	5033455.00	94.4	70	-	120	
72	Ge	1		93143.99	1.79	93230.46	99.9	70	-	120	
115	In	2		5276914.00	1.65	5857332.00	90.1	70	-	120	
209	Bi	2		4352886.00	1.77	5068454.00	85.9	70	-	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\042_MS.D\042_MS.D#

Date Acquired:	Aug 1 2014 04:58 pm	Sample Name:	**1407346-02B MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS 6020A_DW
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.	RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	-881200.00 ppb	0.87	2156.66	200	80-120	######	Fail
9	Be	2	45	209.50 ppb	1.55	0.10	200	80-120	104.7	
11	B	2	45	347.10 ppb	1.18	131.40	200	80-120	107.9	
23	Na	1	45	134600.00 ppb	1.80	########	5000	80-120	34.0	Fail
24	Mg	1	45	32000.00 ppb	2.31	27620.00	5000	80-120	87.6	
27	Al	1	45	4997.00 ppb	2.88	9.79	5000	80-120	99.7	
39	K	1	45	5704.00 ppb	2.88	542.20	5000	80-120	103.2	
44	Ca	2	45	170200.00 ppb	1.08	########	5000	80-120	32.0	Fail
47	Ti	1	45	215.00 ppb	3.81	0.22	200	80-120	107.4	
51	V	1	45	208.30 ppb	2.45	1.39	200	80-120	103.5	
52	Cr	1	45	204.40 ppb	2.88	0.09	200	80-120	102.2	
55	Mn	1	45	704.00 ppb	3.02	512.40	200	80-120	95.8	
56	Fe	1	72	5069.00 ppb	2.77	12.31	5000	80-120	101.1	
59	Co	1	72	208.30 ppb	2.73	2.56	200	80-120	102.9	
60	Ni	1	72	207.20 ppb	2.32	3.07	200	80-120	102.1	
63	Cu	1	72	204.10 ppb	2.74	1.07	200	80-120	101.5	
66	Zn	1	72	205.10 ppb	3.22	1.70	200	80-120	101.7	
75	As	1	72	216.20 ppb	3.04	1.50	200	80-120	107.4	
78	Se	1	72	212.80 ppb	4.42	0.38	200	80-120	106.2	
88	Sr	2	115	907.50 ppb	1.03	699.90	200	80-120	103.8	
95	Mo	2	115	206.00 ppb	1.25	1.17	200	80-120	102.4	
107	Ag	2	115	194.70 ppb	2.07	0.05	200	80-120	97.3	
111	Cd	2	115	203.60 ppb	1.44	0.08	200	80-120	101.8	
118	Sn	2	115	216.50 ppb	1.72	-0.47	200	80-120	108.5	
121	Sb	2	115	202.20 ppb	1.79	0.22	200	80-120	101.0	
137	Ba	2	115	474.60 ppb	1.19	267.20	200	80-120	103.7	
205	Tl	2	209	222.70 ppb	1.49	0.15	200	80-120	111.3	
208	Pb	2	209	215.60 ppb	1.59	0.21	200	80-120	107.7	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	2156.66	8.44	4259.45	50.6	70 -	120	ISFail
45	Sc	1		156006.95	1.94	152280.61	102.4	70 -	120	
45	Sc	2		4830509.50	1.39	5033455.00	96.0	70 -	120	
72	Ge	1		92718.75	1.90	93230.46	99.5	70 -	120	
115	In	2		5353532.00	1.72	5857332.00	91.4	70 -	120	
209	Bi	2		4379064.00	1.58	5068454.00	86.4	70 -	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\043_MS.D\043_MS.D#

Date Acquired:	Aug 1 2014 05:04 pm	Sample Name:	**1407346-02B MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD 6020A_DW
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	-873700.00	ppb	0.10	2187.30	200	80-120	######	Fail
9	Be	2	45	208.80	ppb	0.29	0.10	200	80-120	104.4	
11	B	2	45	347.20	ppb	0.25	131.40	200	80-120	107.9	
23	Na	1	45	134900.00	ppb	1.93	########	5000	80-120	40.0	Fail
24	Mg	1	45	32020.00	ppb	1.67	27620.00	5000	80-120	88.0	
27	Al	1	45	5050.00	ppb	3.76	9.79	5000	80-120	100.8	
39	K	1	45	5716.00	ppb	2.85	542.20	5000	80-120	103.5	
44	Ca	2	45	170000.00	ppb	0.49	########	5000	80-120	28.0	Fail
47	Ti	1	45	211.90	ppb	3.61	0.22	200	80-120	105.8	
51	V	1	45	209.50	ppb	3.22	1.39	200	80-120	104.1	
52	Cr	1	45	205.50	ppb	3.15	0.09	200	80-120	102.7	
55	Mn	1	45	709.90	ppb	3.23	512.40	200	80-120	98.7	
56	Fe	1	72	5167.00	ppb	3.19	12.31	5000	80-120	103.1	
59	Co	1	72	209.60	ppb	2.23	2.56	200	80-120	103.5	
60	Ni	1	72	208.30	ppb	1.74	3.07	200	80-120	102.6	
63	Cu	1	72	204.50	ppb	1.93	1.07	200	80-120	101.7	
66	Zn	1	72	201.90	ppb	1.83	1.70	200	80-120	100.1	
75	As	1	72	216.00	ppb	1.87	1.50	200	80-120	107.3	
78	Se	1	72	212.60	ppb	3.35	0.38	200	80-120	106.1	
88	Sr	2	115	904.70	ppb	1.26	699.90	200	80-120	102.4	
95	Mo	2	115	205.50	ppb	1.13	1.17	200	80-120	102.2	
107	Ag	2	115	193.80	ppb	0.63	0.05	200	80-120	96.9	
111	Cd	2	115	202.30	ppb	0.38	0.08	200	80-120	101.1	
118	Sn	2	115	215.30	ppb	0.97	-0.47	200	80-120	107.9	
121	Sb	2	115	200.40	ppb	0.78	0.22	200	80-120	100.1	
137	Ba	2	115	474.70	ppb	0.42	267.20	200	80-120	103.7	
205	Tl	2	209	223.30	ppb	0.93	0.15	200	80-120	111.6	
208	Pb	2	209	215.80	ppb	1.70	0.21	200	80-120	107.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	2187.30	3.79	4259.45	51.4	70 -	120	ISFail
45	Sc	1	154584.11	1.87	152280.61	101.5	70 -	120	
45	Sc	2	4902296.50	0.68	5033455.00	97.4	70 -	120	
72	Ge	1	92313.07	1.42	93230.46	99.0	70 -	120	
115	In	2	5511776.00	1.25	5857332.00	94.1	70 -	120	
209	Bi	2	4465520.50	1.20	5068454.00	88.1	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\046CCV1.D\046CCV1.D#

Date Acquired:	Aug 1 2014 05:23 pm	Sample Name:	**CCV1-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element			Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2 45	5666.00	ppb	6.66	200.00	90 -	110	2833.0	Fail
9	Be	2 45	200.60	ppb	0.90	200.00	90 -	110	100.3	
11	B	2 45	212.30	ppb	0.92	200.00	90 -	110	106.2	
23	Na	1 45	4998.00	ppb	1.84	5000.00	90 -	110	100.0	
24	Mg	1 45	4797.00	ppb	2.30	5000.00	90 -	110	95.9	
27	Al	1 45	4864.00	ppb	2.86	5000.00	90 -	110	97.3	
39	K	1 45	4997.00	ppb	2.33	5000.00	90 -	110	99.9	
44	Ca	2 45	4867.00	ppb	0.82	5000.00	90 -	110	97.3	
47	Ti	1 45	201.70	ppb	2.52	200.00	90 -	110	100.9	
51	V	1 45	194.20	ppb	2.94	200.00	90 -	110	97.1	
52	Cr	1 45	195.50	ppb	2.97	200.00	90 -	110	97.8	
55	Mn	1 45	201.90	ppb	2.72	200.00	90 -	110	101.0	
56	Fe	1 72	4790.00	ppb	2.40	5000.00	90 -	110	95.8	
59	Co	1 72	200.70	ppb	1.96	200.00	90 -	110	100.4	
60	Ni	1 72	200.50	ppb	2.40	200.00	90 -	110	100.3	
63	Cu	1 72	200.40	ppb	1.71	200.00	90 -	110	100.2	
66	Zn	1 72	198.90	ppb	1.93	200.00	90 -	110	99.5	
75	As	1 72	202.30	ppb	2.88	200.00	90 -	110	101.2	
78	Se	1 72	197.40	ppb	3.71	200.00	90 -	110	98.7	
88	Sr	2 115	206.40	ppb	1.76	200.00	90 -	110	103.2	
95	Mo	2 115	190.10	ppb	1.43	200.00	90 -	110	95.1	
107	Ag	2 115	194.30	ppb	1.09	200.00	90 -	110	97.2	
111	Cd	2 115	195.70	ppb	1.18	200.00	90 -	110	97.9	
118	Sn	2 115	200.90	ppb	0.75	200.00	90 -	110	100.5	
121	Sb	2 115	187.50	ppb	1.54	200.00	90 -	110	93.8	
137	Ba	2 115	198.80	ppb	1.16	200.00	90 -	110	99.4	
205	Tl	2 209	209.60	ppb	1.90	200.00	90 -	110	104.8	
208	Pb	2 209	203.50	ppb	1.44	200.00	90 -	110	101.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	4048.64	2.87	4259.45	95.1	70 -	120	
45	Sc	1	166438.33	2.11	152280.61	109.3	70 -	120	
45	Sc	2	5034884.50	0.18	5033455.00	100.0	70 -	120	
72	Ge	1	100092.62	2.24	93230.46	107.4	70 -	120	
115	In	2	5716843.00	0.28	5857332.00	97.6	70 -	120	
209	Bi	2	4773168.50	1.68	5068454.00	94.2	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\049LCVL.D\049LCVL.D#

Date Acquired:	Aug 1 2014 05:41 pm	Sample Name:	**LCVL1-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	6912.00	ppb	2.56	5.00	70 -	130	######	Fail
9	Be	2	45	1.24	ppb	4.71	1.00	70 -	130	124.4	
11	B	2	45	26.36	ppb	1.26	20.00	70 -	130	131.8	Fail
23	Na	1	45	125.20	ppb	1.82	100.00	70 -	130	125.2	
24	Mg	1	45	111.20	ppb	3.45	100.00	70 -	130	111.2	
27	Al	1	45	115.50	ppb	1.52	100.00	70 -	130	115.5	
39	K	1	45	105.80	ppb	0.92	100.00	70 -	130	105.8	
44	Ca	2	45	24.57	ppb	1.64	100.00	70 -	130	24.6	Fail
47	Ti	1	45	5.42	ppb	4.32	5.00	70 -	130	108.5	
51	V	1	45	1.17	ppb	4.14	1.00	70 -	130	116.9	
52	Cr	1	45	5.82	ppb	2.58	5.00	70 -	130	116.4	
55	Mn	1	45	5.89	ppb	1.39	5.00	70 -	130	117.7	
56	Fe	1	72	109.00	ppb	2.76	100.00	70 -	130	109.0	
59	Co	1	72	5.73	ppb	2.48	5.00	70 -	130	114.5	
60	Ni	1	72	5.56	ppb	1.18	5.00	70 -	130	111.1	
63	Cu	1	72	5.42	ppb	1.70	5.00	70 -	130	108.4	
66	Zn	1	72	4.69	ppb	2.09	5.00	70 -	130	93.8	
75	As	1	72	5.83	ppb	2.09	5.00	70 -	130	116.5	
78	Se	1	72	5.85	ppb	7.07	5.00	70 -	130	117.0	
88	Sr	2	115	5.87	ppb	1.48	5.00	70 -	130	117.4	
95	Mo	2	115	5.33	ppb	1.26	5.00	70 -	130	106.6	
107	Ag	2	115	2.20	ppb	2.81	2.00	70 -	130	109.9	
111	Cd	2	115	1.23	ppb	7.11	1.00	70 -	130	122.9	
118	Sn	2	115	5.20	ppb	1.68	5.00	70 -	130	103.9	
121	Sb	2	115	2.28	ppb	2.10	2.00	70 -	130	114.2	
137	Ba	2	115	5.50	ppb	2.73	5.00	70 -	130	110.1	
205	Tl	2	209	1.23	ppb	1.45	1.00	70 -	130	123.0	
208	Pb	2	209	1.21	ppb	1.90	1.00	70 -	130	120.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3954.16	2.50	4259.45	92.8	70 -	120		
45	Sc	1	155955.61	2.74	152280.61	102.4	70 -	120		
45	Sc	2	4862557.50	0.50	5033455.00	96.6	70 -	120		
72	Ge	1	95808.49	1.60	93230.46	102.8	70 -	120		
115	In	2	5572681.00	1.34	5857332.00	95.1	70 -	120		
209	Bi	2	4765400.00	1.50	5068454.00	94.0	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\050_CCB.D\050_CCB.D#

Date Acquired:	Aug 1 2014 05:47 pm	Sample Name:	**CCB1-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	7714.000	ppb	1.34	2.00	2.00	Failsoil
9	Be	2	45	0.042	ppb	13.21	0.10	0.30	
11	B	2	45	3.967	ppb	1.45	10.00	10.00	
23	Na	1	45	8.328	ppb	2.03	50.00	#####	
24	Mg	1	45	0.694	ppb	10.10	50.00	#####	
27	Al	1	45	-0.638	ppb	11.66	50.00	10.00	
39	K	1	45	0.313	ppb	4.80	50.00	#####	
44	Ca	2	45	-91.130	ppb	2.65	50.00	#####	
47	Ti	1	45	0.081	ppb	33.32	4.00	3.00	
51	V	1	45	0.014	ppb	6.36	4.00	3.00	
52	Cr	1	45	-0.024	ppb	0.11	2.00	2.00	
55	Mn	1	45	0.115	ppb	10.63	2.00	3.00	
56	Fe	1	72	1.020	ppb	4.42	50.00	50.00	
59	Co	1	72	0.057	ppb	6.29	2.00	3.00	
60	Ni	1	72	-0.031	ppb	5.16	2.00	3.00	
63	Cu	1	72	-0.230	ppb	2.20	2.00	2.00	
66	Zn	1	72	-0.982	ppb	0.93	4.00	2.00	
75	As	1	72	0.171	ppb	2.01	2.00	2.00	
78	Se	1	72	0.317	ppb	12.54	0.60	2.00	
88	Sr	2	115	0.084	ppb	4.65	4.00	3.00	
95	Mo	2	115	0.277	ppb	2.98	2.00	2.00	
107	Ag	2	115	0.030	ppb	23.18	0.40	1.00	
111	Cd	2	115	0.015	ppb	44.14	0.40	0.30	
118	Sn	2	115	-0.584	ppb	5.06	4.00	3.00	
121	Sb	2	115	0.118	ppb	5.92	2.00	0.80	
137	Ba	2	115	0.009	ppb	1.73	2.00	3.00	
205	Tl	2	209	0.072	ppb	11.48	2.00	0.50	
208	Pb	2	209	0.043	ppb	9.48	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4001.69	0.18	4259.45	93.9	70 - 120	
45	Sc	1	160928.84	2.47	152280.61	105.7	70 - 120	
45	Sc	2	4951379.00	0.94	5033455.00	98.4	70 - 120	
72	Ge	1	98332.93	2.99	93230.46	105.5	70 - 120	
115	In	2	5616984.50	2.03	5857332.00	95.9	70 - 120	
209	Bi	2	4767823.50	2.04	5068454.00	94.1	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\051__PB.D\051__PB.D#

Date Acquired:	Aug 1 2014 05:53 pm	Sample Name:	**MB-64981**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLK6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element			Conc.	RSD(%)	MDL	RL	Flag
7	Li	2 45	8862.000 ppb	1.76	2.0	5.00	Fail
9	Be	2 45	0.021 ppb	19.52	0.3	0.80	
11	B	2 45	1.709 ppb	2.82	10.0	30.00	
23	Na	1 45	5.377 ppb	2.50	100.0	#####	
24	Mg	1 45	4.999 ppb	6.47	100.0	#####	
27	Al	1 45	-2.159 ppb	4.77	10.0	30.00	
39	K	1 45	-3.650 ppb	3.11	100.0	#####	
44	Ca	2 45	-87.950 ppb	0.52	100.0	#####	
47	Ti	1 45	0.012 ppb	0.00	3.0	10.00	
51	V	1 45	0.003 ppb	5.84	3.0	10.00	
52	Cr	1 45	-0.060 ppb	5.51	2.0	5.00	
55	Mn	1 45	0.203 ppb	9.53	3.0	10.00	
56	Fe	1 72	1.280 ppb	1.64	50.0	#####	
59	Co	1 72	0.035 ppb	21.88	3.0	10.00	
60	Ni	1 72	-0.094 ppb	9.40	3.0	10.00	
63	Cu	1 72	-0.257 ppb	3.76	2.0	10.00	
66	Zn	1 72	0.817 ppb	7.47	2.0	5.00	
75	As	1 72	0.100 ppb	3.62	2.0	5.00	
78	Se	1 72	0.275 ppb	13.64	2.0	5.00	
88	Sr	2 115	0.050 ppb	8.35	3.0	10.00	
95	Mo	2 115	0.169 ppb	7.60	2.0	5.00	
107	Ag	2 115	0.025 ppb	18.23	1.0	2.00	
111	Cd	2 115	0.012 ppb	51.40	0.3	1.00	
118	Sn	2 115	-0.659 ppb	0.81	3.0	10.00	
121	Sb	2 115	0.082 ppb	13.38	0.8	2.50	
137	Ba	2 115	-0.011 ppb	18.42	3.0	10.00	
205	Tl	2 209	0.038 ppb	21.09	0.5	1.50	
208	Pb	2 209	0.026 ppb	12.10	0.3	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2 RHig	4017.69	6.17	4259.45	94.3	70 - 120	
45	Sc	1	164469.11	2.10	152280.61	108.0	70 - 120	
45	Sc	2	5011920.50	1.31	5033455.00	99.6	70 - 120	
72	Ge	1	100009.41	2.14	93230.46	107.3	70 - 120	
115	In	2	5761585.00	0.75	5857332.00	98.4	70 - 120	
209	Bi	2	4931857.00	0.63	5068454.00	97.3	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\053_LCS.D\053_LCS.D#

Date Acquired:	Aug 1 2014 06:06 pm	Sample Name:	**LCS-64981**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8214.00	ppb	2.73	200.00	80 -	120	4107.0	Fail
9	Be	2	45	206.30	ppb	0.91	200.00	80 -	120	103.2	
11	B	2	45	209.60	ppb	1.68	200.00	80 -	120	104.8	
23	Na	1	45	5487.00	ppb	2.58	5000.00	80 -	120	109.7	
24	Mg	1	45	5101.00	ppb	2.72	5000.00	80 -	120	102.0	
27	Al	1	45	5090.00	ppb	2.75	5000.00	80 -	120	101.8	
39	K	1	45	5226.00	ppb	3.46	5000.00	80 -	120	104.5	
44	Ca	2	45	5240.00	ppb	0.47	5000.00	80 -	120	104.8	
47	Ti	1	45	213.90	ppb	3.50	200.00	80 -	120	107.0	
51	V	1	45	206.10	ppb	2.85	200.00	80 -	120	103.1	
52	Cr	1	45	209.10	ppb	3.02	200.00	80 -	120	104.6	
55	Mn	1	45	214.10	ppb	2.99	200.00	80 -	120	107.1	
56	Fe	1	72	5141.00	ppb	2.72	5000.00	80 -	120	102.8	
59	Co	1	72	214.10	ppb	2.03	200.00	80 -	120	107.1	
60	Ni	1	72	214.70	ppb	2.50	200.00	80 -	120	107.4	
63	Cu	1	72	214.30	ppb	2.27	200.00	80 -	120	107.2	
66	Zn	1	72	212.10	ppb	2.46	200.00	80 -	120	106.1	
75	As	1	72	212.00	ppb	2.39	200.00	80 -	120	106.0	
78	Se	1	72	210.40	ppb	4.64	200.00	80 -	120	105.2	
88	Sr	2	115	218.70	ppb	1.63	200.00	80 -	120	109.4	
95	Mo	2	115	197.90	ppb	1.69	200.00	80 -	120	99.0	
107	Ag	2	115	200.60	ppb	0.81	200.00	80 -	120	100.3	
111	Cd	2	115	207.50	ppb	1.86	200.00	80 -	120	103.8	
118	Sn	2	115	212.20	ppb	0.84	200.00	80 -	120	106.1	
121	Sb	2	115	197.20	ppb	1.50	200.00	80 -	120	98.6	
137	Ba	2	115	206.40	ppb	1.27	200.00	80 -	120	103.2	
205	Tl	2	209	213.70	ppb	1.15	200.00	80 -	120	106.9	
208	Pb	2	209	211.90	ppb	1.21	200.00	80 -	120	106.0	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigh	3885.95	5.73	4259.45	91.2	70 -	120	
45	Sc	1		159295.80	2.26	152280.61	104.6	70 -	120	
45	Sc	2		4967903.00	1.05	5033455.00	98.7	70 -	120	
72	Ge	1		95752.97	1.94	93230.46	102.7	70 -	120	
115	In	2		5610613.50	1.42	5857332.00	95.8	70 -	120	
209	Bi	2		4696618.00	1.99	5068454.00	92.7	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\054_LCS.D\054_LCS.D#

Date Acquired:	Aug 1 2014 06:12 pm	Sample Name:	**LCSD-64981**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSD6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8617.00	ppb	3.04	200.00	80 -	120	4308.5	Fail
9	Be	2	45	201.20	ppb	1.39	200.00	80 -	120	100.6	
11	B	2	45	206.80	ppb	0.60	200.00	80 -	120	103.4	
23	Na	1	45	5182.00	ppb	2.84	5000.00	80 -	120	103.6	
24	Mg	1	45	4945.00	ppb	2.63	5000.00	80 -	120	98.9	
27	Al	1	45	4995.00	ppb	4.17	5000.00	80 -	120	99.9	
39	K	1	45	5099.00	ppb	3.86	5000.00	80 -	120	102.0	
44	Ca	2	45	4946.00	ppb	0.75	5000.00	80 -	120	98.9	
47	Ti	1	45	207.10	ppb	1.00	200.00	80 -	120	103.6	
51	V	1	45	201.00	ppb	2.94	200.00	80 -	120	100.5	
52	Cr	1	45	203.30	ppb	3.61	200.00	80 -	120	101.7	
55	Mn	1	45	207.20	ppb	3.46	200.00	80 -	120	103.6	
56	Fe	1	72	4939.00	ppb	3.12	5000.00	80 -	120	98.8	
59	Co	1	72	206.70	ppb	2.27	200.00	80 -	120	103.4	
60	Ni	1	72	207.00	ppb	1.85	200.00	80 -	120	103.5	
63	Cu	1	72	205.70	ppb	2.00	200.00	80 -	120	102.9	
66	Zn	1	72	205.50	ppb	2.80	200.00	80 -	120	102.8	
75	As	1	72	206.30	ppb	2.88	200.00	80 -	120	103.2	
78	Se	1	72	203.30	ppb	2.88	200.00	80 -	120	101.7	
88	Sr	2	115	210.40	ppb	0.95	200.00	80 -	120	105.2	
95	Mo	2	115	192.40	ppb	1.10	200.00	80 -	120	96.2	
107	Ag	2	115	195.00	ppb	1.07	200.00	80 -	120	97.5	
111	Cd	2	115	200.60	ppb	1.45	200.00	80 -	120	100.3	
118	Sn	2	115	205.90	ppb	1.10	200.00	80 -	120	103.0	
121	Sb	2	115	194.40	ppb	1.47	200.00	80 -	120	97.2	
137	Ba	2	115	201.30	ppb	1.23	200.00	80 -	120	100.7	
205	Tl	2	209	206.20	ppb	1.54	200.00	80 -	120	103.1	
208	Pb	2	209	203.20	ppb	1.40	200.00	80 -	120	101.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	3749.46	2.04	4259.45	88.0	70 -	120	
45	Sc	1	158550.30	2.51	152280.61	104.1	70 -	120	
45	Sc	2	4903174.50	0.98	5033455.00	97.4	70 -	120	
72	Ge	1	96472.26	1.92	93230.46	103.5	70 -	120	
115	In	2	5542211.00	0.20	5857332.00	94.6	70 -	120	
209	Bi	2	4693001.00	0.82	5068454.00	92.6	70 -	120	

DT QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\057DT1.D\057DT1.D#

Date Acquired:	Aug 1 2014 06:30 pm	Sample Name:	**1407292-07C SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD 6020A_W
Operator:	SW	Bench Diln:	5.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	-41260.00	ppb	3.46	3893.67	90 - 110	######	
9	Be	2	45	0.08	ppb	3.70	0.10	90 - 110	401.8	
11	B	2	45	13.90	ppb	0.65	59.51	90 - 110	116.8	
23	~~Na~~	1	45	8535.00	ppb	2.13	40540.00	90 - 110	105.3	GOOD
24	Mg	1	45	1023.00	ppb	3.21	5097.00	90 - 110	100.4	GOOD
27	Al	1	45	9.35	ppb	0.63	40.56	90 - 110	115.3	
39	K	1	45	141.00	ppb	2.01	723.20	90 - 110	97.5	GOOD
44	Ca	2	45	4588.00	ppb	0.79	23280.00	90 - 110	98.5	GOOD
47	Ti	1	45	0.35	ppb	37.80	0.75	90 - 110	232.8	
51	V	1	45	0.60	ppb	6.87	2.76	90 - 110	108.4	GOOD
52	Cr	1	45	0.21	ppb	4.85	1.05	90 - 110	99.7	GOOD
55	Mn	1	45	0.57	ppb	13.18	3.01	90 - 110	94.1	GOOD
56	Fe	1	72	5.71	ppb	4.02	27.19	90 - 110	105.0	GOOD
59	Co	1	72	0.07	ppb	11.66	0.14	90 - 110	257.4	
60	Ni	1	72	0.00	ppb	3.67	0.17	90 - 110	0.7	
63	Cu	1	72	-0.18	ppb	11.45	0.34	90 - 110	-257.3	
66	Zn	1	72	-0.71	ppb	12.20	0.06	90 - 110	######	
75	As	1	72	0.41	ppb	6.74	1.57	90 - 110	129.3	
78	Se	1	72	0.29	ppb	13.42	0.84	90 - 110	173.6	
88	Sr	2	115	18.72	ppb	1.76	95.59	90 - 110	97.9	GOOD
95	Mo	2	115	0.34	ppb	6.45	0.93	90 - 110	181.7	
107	Ag	2	115	0.05	ppb	16.96	0.07	90 - 110	393.0	
111	Cd	2	115	0.07	ppb	17.52	0.08	90 - 110	462.9	
118	Sn	2	115	-0.55	ppb	5.15	-0.30	90 - 110	929.5	
121	Sb	2	115	0.10	ppb	3.61	0.17	90 - 110	306.9	
137	Ba	2	115	34.63	ppb	1.53	175.80	90 - 110	98.5	GOOD
205	Tl	2	209	0.11	ppb	12.87	0.16	90 - 110	334.8	
208	Pb	2	209	0.08	ppb	10.86	0.14	90 - 110	281.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	3893.67	2.64	4259.45	91.4	70 -	120	
45	Sc	1	158722.53	2.28	152280.61	104.2	70 -	120	
45	Sc	2	4948301.50	0.39	5033455.00	98.3	70 -	120	
72	Ge	1	97252.99	1.50	93230.46	104.3	70 -	120	
115	In	2	5773187.50	1.20	5857332.00	98.6	70 -	120	
209	Bi	2	4823585.50	1.19	5068454.00	95.2	70 -	120	

PDS QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\065_PDS.D\065_PDS.D#

Date Acquired:	Aug 1 2014 07:17 pm	Sample Name:	**1407292-07C PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element			Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7 Li	2	45	-232500.00	ppb	1.89	3160.44	200	75-125	######	Fail
9 Be	2	45	197.40	ppb	0.73	0.10	200	75-125	98.7	
11 B	2	45	259.30	ppb	0.80	59.51	200	75-125	99.9	
23 Na	1	45	43610.00	ppb	1.47	40540.00	5000	75-125	61.4	Fail
24 Mg	1	45	10170.00	ppb	2.70	5097.00	5000	75-125	101.5	
27 Al	1	45	5160.00	ppb	3.86	40.56	5000	75-125	102.4	
39 K	1	45	6317.00	ppb	2.29	723.20	5000	75-125	111.9	
44 Ca	2	45	27340.00	ppb	1.12	23280.00	5000	75-125	81.2	
47 Ti	1	45	209.40	ppb	4.77	0.75	200	75-125	104.3	
51 V	1	45	200.20	ppb	3.06	2.76	200	75-125	98.7	
52 Cr	1	45	202.10	ppb	3.30	1.05	200	75-125	100.5	
55 Mn	1	45	206.50	ppb	2.94	3.01	200	75-125	101.7	
56 Fe	1	72	4944.00	ppb	3.13	27.19	5000	75-125	98.3	
59 Co	1	72	200.80	ppb	1.83	0.14	200	75-125	100.3	
60 Ni	1	72	196.50	ppb	2.24	0.17	200	75-125	98.2	
63 Cu	1	72	197.30	ppb	1.80	0.34	200	75-125	98.5	
66 Zn	1	72	201.00	ppb	2.92	0.06	200	75-125	100.5	
75 As	1	72	209.50	ppb	2.47	1.57	200	75-125	104.0	
78 Se	1	72	197.60	ppb	3.87	0.84	200	75-125	98.4	
88 Sr	2	115	306.80	ppb	1.28	95.59	200	75-125	105.6	
95 Mo	2	115	186.30	ppb	1.57	0.93	200	75-125	92.7	
107 Ag	2	115	188.30	ppb	1.05	0.07	200	75-125	94.1	
111 Cd	2	115	200.80	ppb	1.11	0.08	200	75-125	100.4	
118 Sn	2	115	210.00	ppb	1.37	-0.30	200	75-125	105.1	
121 Sb	2	115	192.20	ppb	0.98	0.17	200	75-125	96.0	
137 Ba	2	115	370.60	ppb	1.27	175.80	200	75-125	97.4	
205 Tl	2	209	212.00	ppb	0.66	0.16	200	75-125	105.9	
208 Pb	2	209	206.90	ppb	1.55	0.14	200	75-125	103.4	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6 Li	2	RHig		3160.44	8.74	4259.45	74.2	70	-	120	
45 Sc	1			158597.52	2.15	152280.61	104.1	70	-	120	
45 Sc	2			4942824.00	0.97	5033455.00	98.2	70	-	120	
72 Ge	1			98041.84	1.49	93230.46	105.2	70	-	120	
115 In	2			5476988.50	1.15	5857332.00	93.5	70	-	120	
209 Bi	2			4464009.00	1.58	5068454.00	88.1	70	-	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\066_MS.D\066_MS.D#

Date Acquired:	Aug 1 2014 07:23 pm	Sample Name:	**1407292-07C MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	-218400.00	ppb	1.27	3193.65	200	80-120	######	Fail
9	Be	2	45	198.50	ppb	0.27	0.10	200	80-120	99.2	
11	B	2	45	265.20	ppb	0.80	59.51	200	80-120	102.8	
23	Na	1	45	43370.00	ppb	1.94	40540.00	5000	80-120	56.6	Fail
24	Mg	1	45	9736.00	ppb	2.87	5097.00	5000	80-120	92.8	
27	Al	1	45	5046.00	ppb	4.05	40.56	5000	80-120	100.1	
39	K	1	45	5904.00	ppb	2.71	723.20	5000	80-120	103.6	
44	Ca	2	45	27430.00	ppb	0.53	23280.00	5000	80-120	83.0	
47	Ti	1	45	208.80	ppb	2.89	0.75	200	80-120	104.0	
51	V	1	45	204.20	ppb	3.14	2.76	200	80-120	100.7	
52	Cr	1	45	201.50	ppb	2.84	1.05	200	80-120	100.2	
55	Mn	1	45	209.70	ppb	3.34	3.01	200	80-120	103.3	
56	Fe	1	72	4924.00	ppb	3.29	27.19	5000	80-120	97.9	
59	Co	1	72	201.10	ppb	2.53	0.14	200	80-120	100.5	
60	Ni	1	72	200.40	ppb	2.22	0.17	200	80-120	100.1	
63	Cu	1	72	199.40	ppb	2.03	0.34	200	80-120	99.5	
66	Zn	1	72	205.40	ppb	2.54	0.06	200	80-120	102.7	
75	As	1	72	219.40	ppb	2.63	1.57	200	80-120	108.9	
78	Se	1	72	203.40	ppb	3.97	0.84	200	80-120	101.3	
88	Sr	2	115	310.60	ppb	0.65	95.59	200	80-120	107.5	
95	Mo	2	115	199.40	ppb	0.88	0.93	200	80-120	99.2	
107	Ag	2	115	195.20	ppb	1.85	0.07	200	80-120	97.6	
111	Cd	2	115	202.70	ppb	1.52	0.08	200	80-120	101.3	
118	Sn	2	115	210.10	ppb	1.50	-0.30	200	80-120	105.2	
121	Sb	2	115	203.00	ppb	1.26	0.17	200	80-120	101.4	
137	Ba	2	115	378.00	ppb	1.88	175.80	200	80-120	101.1	
205	Tl	2	209	214.30	ppb	1.69	0.16	200	80-120	107.1	
208	Pb	2	209	207.50	ppb	1.37	0.14	200	80-120	103.7	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	RHig	3193.65	5.75	4259.45	75.0	70	-	120	
45	Sc	1		163825.45	2.96	152280.61	107.6	70	-	120	
45	Sc	2		4978154.50	1.06	5033455.00	98.9	70	-	120	
72	Ge	1		100128.40	2.17	93230.46	107.4	70	-	120	
115	In	2		5546572.50	0.66	5857332.00	94.7	70	-	120	
209	Bi	2		4556671.00	1.13	5068454.00	89.9	70	-	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\067_MS.D\067_MS.D#

Date Acquired:	Aug 1 2014 07:29 pm	Sample Name:	**1407292-07C MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element			Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7 Li	2	45	-212900.00	ppb	0.87	3216.95	200	80-120	######	Fail
9 Be	2	45	194.00	ppb	0.69	0.10	200	80-120	97.0	
11 B	2	45	259.50	ppb	0.63	59.51	200	80-120	100.0	
23 Na	1	45	42520.00	ppb	2.44	40540.00	5000	80-120	39.6	Fail
24 Mg	1	45	9553.00	ppb	3.46	5097.00	5000	80-120	89.1	
27 Al	1	45	4897.00	ppb	3.44	40.56	5000	80-120	97.1	
39 K	1	45	5785.00	ppb	2.42	723.20	5000	80-120	101.2	
44 Ca	2	45	26530.00	ppb	0.12	23280.00	5000	80-120	65.0	Fail
47 Ti	1	45	206.10	ppb	3.13	0.75	200	80-120	102.7	
51 V	1	45	199.80	ppb	2.89	2.76	200	80-120	98.5	
52 Cr	1	45	197.30	ppb	3.32	1.05	200	80-120	98.1	
55 Mn	1	45	205.90	ppb	3.05	3.01	200	80-120	101.4	
56 Fe	1	72	4806.00	ppb	2.99	27.19	5000	80-120	95.6	
59 Co	1	72	197.30	ppb	2.22	0.14	200	80-120	98.6	
60 Ni	1	72	197.60	ppb	2.44	0.17	200	80-120	98.7	
63 Cu	1	72	197.40	ppb	2.09	0.34	200	80-120	98.5	
66 Zn	1	72	201.30	ppb	2.12	0.06	200	80-120	100.6	
75 As	1	72	211.50	ppb	2.30	1.57	200	80-120	105.0	
78 Se	1	72	201.70	ppb	4.68	0.84	200	80-120	100.4	
88 Sr	2	115	302.10	ppb	1.21	95.59	200	80-120	103.3	
95 Mo	2	115	193.50	ppb	0.60	0.93	200	80-120	96.3	
107 Ag	2	115	190.60	ppb	1.32	0.07	200	80-120	95.3	
111 Cd	2	115	197.00	ppb	1.78	0.08	200	80-120	98.5	
118 Sn	2	115	206.50	ppb	2.26	-0.30	200	80-120	103.4	
121 Sb	2	115	195.30	ppb	1.52	0.17	200	80-120	97.6	
137 Ba	2	115	370.20	ppb	1.48	175.80	200	80-120	97.2	
205 Tl	2	209	209.90	ppb	0.87	0.16	200	80-120	104.9	
208 Pb	2	209	204.30	ppb	1.39	0.14	200	80-120	102.1	

ISTD Elements

Element		CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2	3216.95	1.50	4259.45	75.5	70 - 120	
45 Sc	1	165234.42	2.49	152280.61	108.5	70 - 120	
45 Sc	2	5052615.50	0.87	5033455.00	100.4	70 - 120	
72 Ge	1	100632.72	1.19	93230.46	107.9	70 - 120	
115 In	2	5737896.50	1.86	5857332.00	98.0	70 - 120	
209 Bi	2	4700053.00	1.72	5068454.00	92.7	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\068CCV1.D\068CCV1.D#

Date Acquired:	Aug 1 2014 07:35 pm	Sample Name:	**CCV2-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element			Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7 Li	2	45	5589.00	ppb	11.03	200.00	90 -	110	2794.5	Fail
9 Be	2	45	195.60	ppb	0.68	200.00	90 -	110	97.8	
11 B	2	45	209.30	ppb	1.19	200.00	90 -	110	104.7	
23 Na	1	45	5223.00	ppb	2.88	5000.00	90 -	110	104.5	
24 Mg	1	45	4892.00	ppb	2.44	5000.00	90 -	110	97.8	
27 Al	1	45	5002.00	ppb	3.63	5000.00	90 -	110	100.0	
39 K	1	45	5111.00	ppb	2.56	5000.00	90 -	110	102.2	
44 Ca	2	45	5074.00	ppb	1.15	5000.00	90 -	110	101.5	
47 Ti	1	45	204.50	ppb	2.73	200.00	90 -	110	102.3	
51 V	1	45	200.10	ppb	3.26	200.00	90 -	110	100.1	
52 Cr	1	45	201.30	ppb	2.83	200.00	90 -	110	100.7	
55 Mn	1	45	209.10	ppb	2.49	200.00	90 -	110	104.6	
56 Fe	1	72	4919.00	ppb	3.46	5000.00	90 -	110	98.4	
59 Co	1	72	206.20	ppb	2.41	200.00	90 -	110	103.1	
60 Ni	1	72	206.70	ppb	2.37	200.00	90 -	110	103.4	
63 Cu	1	72	206.50	ppb	2.38	200.00	90 -	110	103.3	
66 Zn	1	72	207.10	ppb	2.92	200.00	90 -	110	103.6	
75 As	1	72	212.80	ppb	2.86	200.00	90 -	110	106.4	
78 Se	1	72	206.90	ppb	2.74	200.00	90 -	110	103.5	
88 Sr	2	115	210.70	ppb	1.66	200.00	90 -	110	105.4	
95 Mo	2	115	193.00	ppb	1.79	200.00	90 -	110	96.5	
107 Ag	2	115	197.60	ppb	1.21	200.00	90 -	110	98.8	
111 Cd	2	115	200.20	ppb	1.66	200.00	90 -	110	100.1	
118 Sn	2	115	204.30	ppb	1.44	200.00	90 -	110	102.2	
121 Sb	2	115	194.60	ppb	1.67	200.00	90 -	110	97.3	
137 Ba	2	115	201.10	ppb	1.74	200.00	90 -	110	100.6	
205 Tl	2	209	213.90	ppb	2.34	200.00	90 -	110	107.0	
208 Pb	2	209	208.10	ppb	2.08	200.00	90 -	110	104.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6 Li	2	RHigh	3662.42	5.80	4259.45	86.0	70 -	120	
45 Sc	1		165776.84	2.27	152280.61	108.9	70 -	120	
45 Sc	2		5171858.50	0.43	5033455.00	102.7	70 -	120	
72 Ge	1		100484.41	2.44	93230.46	107.8	70 -	120	
115 In	2		5895580.50	1.39	5857332.00	100.7	70 -	120	
209 Bi	2		4818119.00	1.76	5068454.00	95.1	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\072LCVL.D\072LCVL.D#

Date Acquired:	Aug 1 2014 08:00 pm	Sample Name:	**LCVL2-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	7309.00	ppb	8.14	5.00	70 -	130	######	Fail
9	Be	2	45	1.15	ppb	3.32	1.00	70 -	130	114.9	
11	B	2	45	25.96	ppb	2.39	20.00	70 -	130	129.8	
23	Na	1	45	152.60	ppb	2.71	100.00	70 -	130	152.6	Fail
24	Mg	1	45	107.90	ppb	4.52	100.00	70 -	130	107.9	
27	Al	1	45	109.30	ppb	2.18	100.00	70 -	130	109.3	
39	K	1	45	123.80	ppb	3.21	100.00	70 -	130	123.8	
44	Ca	2	45	14.49	ppb	2.30	100.00	70 -	130	14.5	Fail
47	Ti	1	45	5.88	ppb	14.94	5.00	70 -	130	117.5	
51	V	1	45	1.13	ppb	1.68	1.00	70 -	130	113.2	
52	Cr	1	45	5.56	ppb	2.44	5.00	70 -	130	111.2	
55	Mn	1	45	6.52	ppb	4.42	5.00	70 -	130	130.4	Fail
56	Fe	1	72	106.50	ppb	1.75	100.00	70 -	130	106.5	
59	Co	1	72	5.58	ppb	0.84	5.00	70 -	130	111.6	
60	Ni	1	72	5.55	ppb	1.99	5.00	70 -	130	110.9	
63	Cu	1	72	5.33	ppb	1.69	5.00	70 -	130	106.6	
66	Zn	1	72	4.76	ppb	3.13	5.00	70 -	130	95.2	
75	As	1	72	5.93	ppb	2.02	5.00	70 -	130	118.5	
78	Se	1	72	5.97	ppb	1.28	5.00	70 -	130	119.4	
88	Sr	2	115	5.87	ppb	1.50	5.00	70 -	130	117.5	
95	Mo	2	115	5.27	ppb	2.41	5.00	70 -	130	105.4	
107	Ag	2	115	2.12	ppb	4.61	2.00	70 -	130	105.8	
111	Cd	2	115	1.13	ppb	8.89	1.00	70 -	130	113.1	
118	Sn	2	115	5.04	ppb	2.23	5.00	70 -	130	100.8	
121	Sb	2	115	2.25	ppb	0.64	2.00	70 -	130	112.3	
137	Ba	2	115	5.58	ppb	3.87	5.00	70 -	130	111.7	
205	Tl	2	209	1.21	ppb	2.92	1.00	70 -	130	121.3	
208	Pb	2	209	1.15	ppb	3.41	1.00	70 -	130	114.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3775.74	1.91	4259.45	88.6	70 -	120		
45	Sc	1	165156.58	2.70	152280.61	108.5	70 -	120		
45	Sc	2	5015208.50	0.36	5033455.00	99.6	70 -	120		
72	Ge	1	100738.45	1.42	93230.46	108.1	70 -	120		
115	In	2	5700702.00	2.01	5857332.00	97.3	70 -	120		
209	Bi	2	4794756.00	1.08	5068454.00	94.6	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\075_CCB.D\075_CCB.D#

Date Acquired:	Aug 1 2014 08:18 pm	Sample Name:	**CCB2-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	8875.000	ppb	3.53	2.00	2.00	Failsoil
9	Be	2	45	0.037	ppb	1.90	0.10	0.30	
11	B	2	45	2.847	ppb	1.51	10.00	10.00	
23	Na	1	45	35.670	ppb	1.23	50.00	#####	
24	Mg	1	45	-0.438	ppb	13.42	50.00	#####	
27	Al	1	45	-1.680	ppb	4.25	50.00	10.00	
39	K	1	45	12.400	ppb	1.67	50.00	#####	
44	Ca	2	45	-96.220	ppb	3.73	50.00	#####	
47	Ti	1	45	-0.052	ppb	99.97	4.00	3.00	
51	V	1	45	0.025	ppb	3.66	4.00	3.00	
52	Cr	1	45	-0.046	ppb	4.81	2.00	2.00	
55	Mn	1	45	0.736	ppb	4.95	2.00	3.00	
56	Fe	1	72	0.541	ppb	4.23	50.00	50.00	
59	Co	1	72	0.016	ppb	4.92	2.00	3.00	
60	Ni	1	72	-0.103	ppb	3.43	2.00	3.00	
63	Cu	1	72	-0.238	ppb	4.00	2.00	2.00	
66	Zn	1	72	-0.920	ppb	3.39	4.00	2.00	
75	As	1	72	0.123	ppb	7.33	2.00	2.00	
78	Se	1	72	0.335	ppb	15.86	0.60	2.00	
88	Sr	2	115	0.114	ppb	11.67	4.00	3.00	
95	Mo	2	115	0.143	ppb	8.54	2.00	2.00	
107	Ag	2	115	0.019	ppb	26.59	0.40	1.00	
111	Cd	2	115	0.020	ppb	72.08	0.40	0.30	
118	Sn	2	115	-0.656	ppb	4.42	4.00	3.00	
121	Sb	2	115	0.060	ppb	0.00	2.00	0.80	
137	Ba	2	115	0.032	ppb	19.99	2.00	3.00	
205	Tl	2	209	0.044	ppb	15.85	2.00	0.50	
208	Pb	2	209	0.023	ppb	19.38	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3734.45	2.97	4259.45	87.7	70 - 120	
45	Sc	1	162542.38	2.72	152280.61	106.7	70 - 120	
45	Sc	2	5005303.50	0.65	5033455.00	99.4	70 - 120	
72	Ge	1	100742.79	1.47	93230.46	108.1	70 - 120	
115	In	2	5698379.00	0.59	5857332.00	97.3	70 - 120	
209	Bi	2	4798385.00	1.41	5068454.00	94.7	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\076__PB.D\076__PB.D#

Date Acquired:	Aug 1 2014 08:24 pm	Sample Name:	**MB-64976**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLK6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	8821.000	ppb	11.26	2.0	5.00	Fail
9	Be	2	45	0.020	ppb	11.80	0.3	0.80	
11	B	2	45	5.152	ppb	3.95	10.0	30.00	
23	Na	1	45	29.000	ppb	3.86	100.0	#####	
24	Mg	1	45	2.652	ppb	9.03	100.0	#####	
27	Al	1	45	11.110	ppb	3.12	10.0	30.00	J
39	K	1	45	16.680	ppb	1.71	100.0	#####	
44	Ca	2	45	-71.960	ppb	1.19	100.0	#####	
47	Ti	1	45	0.071	ppb	33.32	3.0	10.00	
51	V	1	45	-0.016	ppb	11.83	3.0	10.00	
52	Cr	1	45	-0.057	ppb	4.38	2.0	5.00	
55	Mn	1	45	0.702	ppb	10.18	3.0	10.00	
56	Fe	1	72	0.774	ppb	0.61	50.0	#####	
59	Co	1	72	0.005	ppb	9.58	3.0	10.00	
60	Ni	1	72	-0.094	ppb	4.92	3.0	10.00	
63	Cu	1	72	-0.279	ppb	9.72	2.0	10.00	
66	Zn	1	72	1.701	ppb	5.64	2.0	5.00	
75	As	1	72	0.117	ppb	3.41	2.0	5.00	
78	Se	1	72	0.287	ppb	16.76	2.0	5.00	
88	Sr	2	115	0.130	ppb	4.74	3.0	10.00	
95	Mo	2	115	0.127	ppb	5.81	2.0	5.00	
107	Ag	2	115	0.011	ppb	26.72	1.0	2.00	
111	Cd	2	115	0.014	ppb	65.97	0.3	1.00	
118	Sn	2	115	-0.692	ppb	2.03	3.0	10.00	
121	Sb	2	115	0.041	ppb	4.80	0.8	2.50	
137	Ba	2	115	0.067	ppb	2.11	3.0	10.00	
205	Tl	2	209	0.032	ppb	4.68	0.5	1.50	
208	Pb	2	209	0.021	ppb	15.33	0.3	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3735.58	2.89	4259.45	87.7	70 - 120	
45	Sc	1	169711.14	2.63	152280.61	111.4	70 - 120	
45	Sc	2	5065083.00	0.41	5033455.00	100.6	70 - 120	
72	Ge	1	103597.65	1.70	93230.46	111.1	70 - 120	
115	In	2	5796694.00	2.39	5857332.00	99.0	70 - 120	
209	Bi	2	4883676.00	1.53	5068454.00	96.4	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\077_LCS.D\077_LCS.D#

Date Acquired:	Aug 1 2014 08:30 pm	Sample Name:	**LCS-64976**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8169.00	ppb	2.83	200.00	80 -	120	4084.5	Fail
9	Be	2	45	200.40	ppb	0.79	200.00	80 -	120	100.2	
11	B	2	45	207.50	ppb	0.84	200.00	80 -	120	103.8	
23	Na	1	45	5186.00	ppb	2.41	5000.00	80 -	120	103.7	
24	Mg	1	45	5022.00	ppb	2.48	5000.00	80 -	120	100.4	
27	Al	1	45	5259.00	ppb	2.90	5000.00	80 -	120	105.2	
39	K	1	45	5339.00	ppb	2.21	5000.00	80 -	120	106.8	
44	Ca	2	45	5316.00	ppb	0.38	5000.00	80 -	120	106.3	
47	Ti	1	45	209.00	ppb	3.54	200.00	80 -	120	104.5	
51	V	1	45	203.70	ppb	1.95	200.00	80 -	120	101.9	
52	Cr	1	45	204.20	ppb	1.97	200.00	80 -	120	102.1	
55	Mn	1	45	214.60	ppb	1.47	200.00	80 -	120	107.3	
56	Fe	1	72	5029.00	ppb	2.69	5000.00	80 -	120	100.6	
59	Co	1	72	207.00	ppb	2.00	200.00	80 -	120	103.5	
60	Ni	1	72	206.80	ppb	1.15	200.00	80 -	120	103.4	
63	Cu	1	72	206.40	ppb	1.66	200.00	80 -	120	103.2	
66	Zn	1	72	212.60	ppb	2.30	200.00	80 -	120	106.3	
75	As	1	72	215.90	ppb	2.04	200.00	80 -	120	108.0	
78	Se	1	72	213.20	ppb	3.05	200.00	80 -	120	106.6	
88	Sr	2	115	219.50	ppb	0.38	200.00	80 -	120	109.8	
95	Mo	2	115	196.50	ppb	0.44	200.00	80 -	120	98.3	
107	Ag	2	115	200.40	ppb	1.08	200.00	80 -	120	100.2	
111	Cd	2	115	207.10	ppb	1.07	200.00	80 -	120	103.6	
118	Sn	2	115	211.80	ppb	1.17	200.00	80 -	120	105.9	
121	Sb	2	115	199.90	ppb	0.76	200.00	80 -	120	100.0	
137	Ba	2	115	208.10	ppb	1.15	200.00	80 -	120	104.1	
205	Tl	2	209	208.80	ppb	1.16	200.00	80 -	120	104.4	
208	Pb	2	209	210.30	ppb	0.82	200.00	80 -	120	105.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3761.95	2.29	4259.45	88.3	70 -	120		
45	Sc	1	168742.11	1.44	152280.61	110.8	70 -	120		
45	Sc	2	5080985.50	0.48	5033455.00	100.9	70 -	120		
72	Ge	1	102348.98	0.90	93230.46	109.8	70 -	120		
115	In	2	5852967.00	1.30	5857332.00	99.9	70 -	120		
209	Bi	2	4893831.50	2.05	5068454.00	96.6	70 -	120		

LCS QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\078_LCS.D\078_LCS.D#

Date Acquired:	Aug 1 2014 08:36 pm	Sample Name:	**LCSD-64976**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSD6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8487.00	ppb	8.49	200.00	80 -	120	4243.5	Fail
9	Be	2	45	193.70	ppb	0.49	200.00	80 -	120	96.9	
11	B	2	45	201.40	ppb	1.05	200.00	80 -	120	100.7	
23	Na	1	45	5063.00	ppb	2.37	5000.00	80 -	120	101.3	
24	Mg	1	45	4851.00	ppb	2.49	5000.00	80 -	120	97.0	
27	Al	1	45	4965.00	ppb	3.23	5000.00	80 -	120	99.3	
39	K	1	45	5099.00	ppb	2.07	5000.00	80 -	120	102.0	
44	Ca	2	45	4978.00	ppb	1.86	5000.00	80 -	120	99.6	
47	Ti	1	45	205.00	ppb	4.83	200.00	80 -	120	102.5	
51	V	1	45	198.50	ppb	2.20	200.00	80 -	120	99.3	
52	Cr	1	45	199.50	ppb	2.06	200.00	80 -	120	99.8	
55	Mn	1	45	207.50	ppb	2.04	200.00	80 -	120	103.8	
56	Fe	1	72	4936.00	ppb	2.27	5000.00	80 -	120	98.7	
59	Co	1	72	203.90	ppb	1.63	200.00	80 -	120	102.0	
60	Ni	1	72	203.00	ppb	1.77	200.00	80 -	120	101.5	
63	Cu	1	72	203.30	ppb	1.33	200.00	80 -	120	101.7	
66	Zn	1	72	205.60	ppb	1.69	200.00	80 -	120	102.8	
75	As	1	72	209.10	ppb	1.96	200.00	80 -	120	104.6	
78	Se	1	72	206.70	ppb	3.73	200.00	80 -	120	103.4	
88	Sr	2	115	211.60	ppb	0.74	200.00	80 -	120	105.8	
95	Mo	2	115	191.90	ppb	1.00	200.00	80 -	120	96.0	
107	Ag	2	115	193.40	ppb	1.54	200.00	80 -	120	96.7	
111	Cd	2	115	200.30	ppb	1.19	200.00	80 -	120	100.2	
118	Sn	2	115	204.10	ppb	0.91	200.00	80 -	120	102.1	
121	Sb	2	115	193.60	ppb	1.24	200.00	80 -	120	96.8	
137	Ba	2	115	201.30	ppb	1.45	200.00	80 -	120	100.7	
205	Tl	2	209	201.40	ppb	1.65	200.00	80 -	120	100.7	
208	Pb	2	209	202.90	ppb	1.54	200.00	80 -	120	101.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3776.84	1.83	4259.45	88.7	70 -	120		
45	Sc	1	165807.64	1.94	152280.61	108.9	70 -	120		
45	Sc	2	5133550.00	0.83	5033455.00	102.0	70 -	120		
72	Ge	1	100470.02	1.48	93230.46	107.8	70 -	120		
115	In	2	5862155.00	1.22	5857332.00	100.1	70 -	120		
209	Bi	2	4865148.00	1.78	5068454.00	96.0	70 -	120		

Sample QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\080AREF.D\080AREF.D#

Date Acquired:	Aug 1 2014 08:48 pm	Sample Name:	**1407278-03A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	-331500.000	ppb	#REF!	1.55	2000.00	ND
9	Be	2	45	0.092	ppb	#REF!	16.64	2000.00	ND
11	B	2	45	121.500	ppb	#REF!	1.19	2000.00	>RL
23	Na	1	45	7586.000	ppb	#REF!	1.90	25000.00	>RL
24	Mg	1	45	5872.000	ppb	#REF!	3.11	25000.00	>RL
27	Al	1	45	278.000	ppb	#REF!	4.36	10000.00	>RL
39	K	1	45	2484.000	ppb	#REF!	2.00	25000.00	>RL
44	Ca	2	45	132000.000	ppb	#REF!	1.51	25000.00	OUTCAL
47	Ti	1	45	3.919	ppb	#REF!	6.35	2000.00	ND
51	V	1	45	2.409	ppb	#REF!	4.68	2000.00	ND
52	Cr	1	45	0.480	ppb	#REF!	1.40	2000.00	ND
55	Mn	1	45	351.400	ppb	#REF!	2.57	2000.00	>RL
56	Fe	1	72	769.000	ppb	#REF!	2.74	10000.00	>RL
59	Co	1	72	1.330	ppb	#REF!	1.59	2000.00	ND
60	Ni	1	72	1.348	ppb	#REF!	7.05	2000.00	ND
63	Cu	1	72	6.109	ppb	#REF!	1.54	2000.00	J
66	Zn	1	72	5.996	ppb	#REF!	2.71	2000.00	J
75	As	1	72	7.784	ppb	#REF!	0.95	2000.00	>RL
78	Se	1	72	0.794	ppb	#REF!	9.50	2000.00	J
88	Sr	2	115	235.200	ppb	#REF!	1.07	2000.00	>RL
95	Mo	2	115	13.550	ppb	#REF!	2.04	2000.00	>RL
107	Ag	2	115	0.061	ppb	#REF!	30.48	500.00	ND
111	Cd	2	115	0.101	ppb	#REF!	11.35	2000.00	ND
118	Sn	2	115	-0.583	ppb	#REF!	12.92	2000.00	ND
121	Sb	2	115	218.400	ppb	#REF!	1.54	500.00	>RL
137	Ba	2	115	75.960	ppb	#REF!	2.27	2000.00	>RL
205	Tl	2	209	0.162	ppb	#REF!	19.18	2000.00	ND
208	Pb	2	209	1.613	ppb	#REF!	3.65	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2901.10	6.50	RHigh	4259.45	68.1	70 - 120	ISFail
45	Sc	1	165909.02	1.88		152280.61	108.9	70 - 120	
45	Sc	2	4957924.50	1.36		5033455.00	98.5	70 - 120	
72	Ge	1	100590.74	1.43		93230.46	107.9	70 - 120	
115	In	2	5740782.50	0.90		5857332.00	98.0	70 - 120	
209	Bi	2	4685532.00	0.86		5068454.00	92.4	70 - 120	

DT QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\081DT1.D\081DT1.D#

Date Acquired:	Aug 1 2014 08:54 pm	Sample Name:	**1407278-03A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD 6020A_W
Operator:	SW	Bench Diln:	5.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	-61160.00	ppb	1.09	3571.47	90 - 110	######	
9	Be	2	45	0.05	ppb	3.88	0.09	90 - 110	295.7	
11	B	2	45	27.97	ppb	1.80	121.50	90 - 110	115.1	
23	Na	1	45	1565.00	ppb	1.71	7586.00	90 - 110	103.2	GOOD
24	Mg	1	45	1236.00	ppb	1.80	5872.00	90 - 110	105.2	GOOD
27	Al	1	45	59.96	ppb	3.63	278.00	90 - 110	107.8	GOOD
39	K	1	45	513.20	ppb	2.37	2484.00	90 - 110	103.3	GOOD
44	Ca	2	45	27550.00	ppb	0.40	132000.00	90 - 110	104.4	GOOD
47	Ti	1	45	0.97	ppb	35.88	3.92	90 - 110	124.3	
51	V	1	45	0.57	ppb	3.77	2.41	90 - 110	117.7	
52	Cr	1	45	0.16	ppb	17.07	0.48	90 - 110	165.1	
55	Mn	1	45	74.84	ppb	2.29	351.40	90 - 110	106.5	GOOD
56	Fe	1	72	161.60	ppb	2.24	769.00	90 - 110	105.1	GOOD
59	Co	1	72	0.31	ppb	4.51	1.33	90 - 110	114.9	
60	Ni	1	72	0.28	ppb	5.53	1.35	90 - 110	102.2	GOOD
63	Cu	1	72	1.11	ppb	3.16	6.11	90 - 110	91.1	GOOD
66	Zn	1	72	0.32	ppb	5.01	6.00	90 - 110	27.1	
75	As	1	72	1.74	ppb	3.26	7.78	90 - 110	112.0	
78	Se	1	72	0.48	ppb	9.03	0.79	90 - 110	300.7	
88	Sr	2	115	47.18	ppb	1.04	235.20	90 - 110	100.3	GOOD
95	Mo	2	115	3.08	ppb	0.76	13.55	90 - 110	113.5	
107	Ag	2	115	0.04	ppb	24.26	0.06	90 - 110	292.8	
111	Cd	2	115	0.05	ppb	18.63	0.10	90 - 110	237.4	
118	Sn	2	115	-0.65	ppb	8.51	-0.58	90 - 110	560.0	
121	Sb	2	115	45.18	ppb	1.12	218.40	90 - 110	103.4	GOOD
137	Ba	2	115	15.91	ppb	2.38	75.96	90 - 110	104.7	GOOD
205	Tl	2	209	0.08	ppb	8.94	0.16	90 - 110	235.1	
208	Pb	2	209	0.36	ppb	2.82	1.61	90 - 110	111.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	3571.47	1.07	4259.45	83.8	70 -	120	
45	Sc	1	158019.06	2.58	152280.61	103.8	70 -	120	
45	Sc	2	4885741.50	0.72	5033455.00	97.1	70 -	120	
72	Ge	1	97469.28	1.49	93230.46	104.5	70 -	120	
115	In	2	5647314.00	1.15	5857332.00	96.4	70 -	120	
209	Bi	2	4748288.50	1.11	5068454.00	93.7	70 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\082SMPL.D\082SMPL.D#

Date Acquired:	Aug 1 2014 09:00 pm	Sample Name:	**1407278-01A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	-1356000.000	ppb	#REF!	0.94	2000.00	ND
9	Be	2	45	0.033	ppb	#REF!	48.05	2000.00	ND
11	B	2	45	176.900	ppb	#REF!	1.07	2000.00	>RL
23	Na	1	45	55360.000	ppb	#REF!	0.96	25000.00	OUTCAL
24	Mg	1	45	6872.000	ppb	#REF!	2.51	25000.00	>RL
27	Al	1	45	53.480	ppb	#REF!	3.00	10000.00	>RL
39	K	1	45	1468.000	ppb	#REF!	2.89	25000.00	>RL
44	Ca	2	45	139500.000	ppb	#REF!	1.22	25000.00	OUTCAL
47	Ti	1	45	1.083	ppb	#REF!	32.88	2000.00	ND
51	V	1	45	1.423	ppb	#REF!	2.62	2000.00	ND
52	Cr	1	45	0.173	ppb	#REF!	1.57	2000.00	ND
55	Mn	1	45	6.003	ppb	#REF!	5.22	2000.00	J
56	Fe	1	72	18.620	ppb	#REF!	1.59	10000.00	ND
59	Co	1	72	0.108	ppb	#REF!	6.41	2000.00	ND
60	Ni	1	72	1.145	ppb	#REF!	2.86	2000.00	ND
63	Cu	1	72	0.376	ppb	#REF!	5.30	2000.00	ND
66	Zn	1	72	4.889	ppb	#REF!	1.85	2000.00	J
75	As	1	72	1.583	ppb	#REF!	4.46	2000.00	ND
78	Se	1	72	15.010	ppb	#REF!	3.64	2000.00	>RL
88	Sr	2	115	667.600	ppb	#REF!	1.76	2000.00	>RL
95	Mo	2	115	1.137	ppb	#REF!	2.35	2000.00	ND
107	Ag	2	115	0.019	ppb	#REF!	12.30	500.00	ND
111	Cd	2	115	0.064	ppb	#REF!	23.28	2000.00	ND
118	Sn	2	115	-0.627	ppb	#REF!	6.67	2000.00	ND
121	Sb	2	115	1.875	ppb	#REF!	1.04	500.00	J
137	Ba	2	115	112.800	ppb	#REF!	2.31	2000.00	>RL
205	Tl	2	209	0.064	ppb	#REF!	11.19	2000.00	ND
208	Pb	2	209	0.573	ppb	#REF!	5.34	2000.00	J

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	1116.88	14.86	RHigh	4259.45	26.2	70 - 120	ISFail
45	Sc	1	162536.81	1.71		152280.61	106.7	70 - 120	
45	Sc	2	4935194.50	1.13		5033455.00	98.0	70 - 120	
72	Ge	1	98782.45	1.41		93230.46	106.0	70 - 120	
115	In	2	5604735.50	1.32		5857332.00	95.7	70 - 120	
209	Bi	2	4553223.50	1.58		5068454.00	89.8	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\083SMPL.D\083SMPL.D#

Date Acquired:	Aug 1 2014 09:06 pm	Sample Name:	**1407278-02A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	-450500.000	ppb	#REF!	0.92	2000.00	ND
9	Be	2	45	0.030	ppb	#REF!	30.70	2000.00	ND
11	B	2	45	247.600	ppb	#REF!	1.05	2000.00	>RL
23	Na	1	45	50120.000	ppb	#REF!	2.02	25000.00	OUTCAL
24	Mg	1	45	9445.000	ppb	#REF!	2.44	25000.00	>RL
27	Al	1	45	58.230	ppb	#REF!	4.22	10000.00	>RL
39	K	1	45	3522.000	ppb	#REF!	3.05	25000.00	>RL
44	Ca	2	45	134300.000	ppb	#REF!	0.73	25000.00	OUTCAL
47	Ti	1	45	0.796	ppb	#REF!	4.03	2000.00	ND
51	V	1	45	0.085	ppb	#REF!	11.63	2000.00	ND
52	Cr	1	45	0.023	ppb	#REF!	3.13	2000.00	ND
55	Mn	1	45	2624.000	ppb	#REF!	1.86	2000.00	OUTCAL
56	Fe	1	72	740.200	ppb	#REF!	2.46	10000.00	>RL
59	Co	1	72	1.365	ppb	#REF!	2.68	2000.00	ND
60	Ni	1	72	3.850	ppb	#REF!	3.00	2000.00	J
63	Cu	1	72	2.121	ppb	#REF!	1.94	2000.00	J
66	Zn	1	72	7.394	ppb	#REF!	2.58	2000.00	>RL
75	As	1	72	11.760	ppb	#REF!	2.76	2000.00	>RL
78	Se	1	72	0.603	ppb	#REF!	19.22	2000.00	ND
88	Sr	2	115	382.200	ppb	#REF!	1.52	2000.00	>RL
95	Mo	2	115	19.370	ppb	#REF!	1.68	2000.00	>RL
107	Ag	2	115	0.013	ppb	#REF!	25.30	500.00	ND
111	Cd	2	115	0.149	ppb	#REF!	24.36	2000.00	ND
118	Sn	2	115	-0.621	ppb	#REF!	13.98	2000.00	ND
121	Sb	2	115	1.158	ppb	#REF!	3.92	500.00	J
137	Ba	2	115	129.200	ppb	#REF!	2.36	2000.00	>RL
205	Tl	2	209	0.039	ppb	#REF!	9.46	2000.00	ND
208	Pb	2	209	0.272	ppb	#REF!	4.94	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2622.55	4.28	4259.45	61.6	70 - 120	ISFail
45	Sc	1	166738.17	1.46	152280.61	109.5	70 - 120	
45	Sc	2	4994721.00	0.98	5033455.00	99.2	70 - 120	
72	Ge	1	100579.02	1.09	93230.46	107.9	70 - 120	
115	In	2	5649930.50	2.48	5857332.00	96.5	70 - 120	
209	Bi	2	4627522.50	1.29	5068454.00	91.3	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\084SMPL.D\084SMPL.D#

Date Acquired:	Aug 1 2014 09:12 pm	Sample Name:	**1407278-04A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	-1308000.000	ppb	#REF!	1.35	2000.00	ND
9	Be	2	45	0.068	ppb	#REF!	21.14	2000.00	ND
11	B	2	45	432.700	ppb	#REF!	1.03	2000.00	>RL
23	Na	1	45	109300.000	ppb	#REF!	2.10	25000.00	OUTCAL
24	Mg	1	45	7795.000	ppb	#REF!	2.98	25000.00	>RL
27	Al	1	45	62.710	ppb	#REF!	5.15	10000.00	>RL
39	K	1	45	3099.000	ppb	#REF!	3.22	25000.00	>RL
44	Ca	2	45	127900.000	ppb	#REF!	1.48	25000.00	OUTCAL
47	Ti	1	45	1.519	ppb	#REF!	71.42	2000.00	ND
51	V	1	45	3.019	ppb	#REF!	6.04	2000.00	J
52	Cr	1	45	0.284	ppb	#REF!	6.24	2000.00	ND
55	Mn	1	45	317.200	ppb	#REF!	3.14	2000.00	>RL
56	Fe	1	72	211.200	ppb	#REF!	2.80	10000.00	>RL
59	Co	1	72	3.334	ppb	#REF!	1.67	2000.00	J
60	Ni	1	72	7.420	ppb	#REF!	3.80	2000.00	J
63	Cu	1	72	7.969	ppb	#REF!	1.24	2000.00	J
66	Zn	1	72	23.440	ppb	#REF!	1.67	2000.00	>RL
75	As	1	72	7.370	ppb	#REF!	3.80	2000.00	>RL
78	Se	1	72	16.900	ppb	#REF!	2.79	2000.00	>RL
88	Sr	2	115	346.000	ppb	#REF!	1.83	2000.00	>RL
95	Mo	2	115	44.490	ppb	#REF!	2.32	2000.00	>RL
107	Ag	2	115	0.012	ppb	#REF!	5.33	500.00	ND
111	Cd	2	115	0.117	ppb	#REF!	6.51	2000.00	ND
118	Sn	2	115	-0.659	ppb	#REF!	3.33	2000.00	ND
121	Sb	2	115	303.100	ppb	#REF!	1.89	500.00	>RL
137	Ba	2	115	62.050	ppb	#REF!	2.88	2000.00	>RL
205	Tl	2	209	0.035	ppb	#REF!	16.82	2000.00	ND
208	Pb	2	209	0.703	ppb	#REF!	5.13	2000.00	J

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	959.05	21.72	RHigh	4259.45	22.5	70 - 120	ISFail
45	Sc	1	161418.98	2.32		152280.61	106.0	70 - 120	
45	Sc	2	4855754.00	0.53		5033455.00	96.5	70 - 120	
72	Ge	1	97475.70	1.86		93230.46	104.6	70 - 120	
115	In	2	5550624.00	1.40		5857332.00	94.8	70 - 120	
209	Bi	2	4535489.00	1.25		5068454.00	89.5	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\085SMPL.D\085SMPL.D#

Date Acquired:	Aug 1 2014 09:19 pm	Sample Name:	**1407278-05A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	-1307000.000	ppb	#REF!	0.27	2000.00	ND
9	Be	2	45	0.034	ppb	#REF!	18.19	2000.00	ND
11	B	2	45	197.000	ppb	#REF!	1.10	2000.00	>RL
23	Na	1	45	122600.000	ppb	#REF!	1.56	25000.00	OUTCAL
24	Mg	1	45	17170.000	ppb	#REF!	2.49	25000.00	>RL
27	Al	1	45	54.670	ppb	#REF!	5.14	10000.00	>RL
39	K	1	45	5740.000	ppb	#REF!	2.49	25000.00	>RL
44	Ca	2	45	110900.000	ppb	#REF!	0.73	25000.00	OUTCAL
47	Ti	1	45	1.867	ppb	#REF!	20.60	2000.00	ND
51	V	1	45	3.957	ppb	#REF!	4.84	2000.00	J
52	Cr	1	45	0.206	ppb	#REF!	4.85	2000.00	ND
55	Mn	1	45	10.150	ppb	#REF!	0.75	2000.00	>RL
56	Fe	1	72	33.250	ppb	#REF!	1.22	10000.00	ND
59	Co	1	72	2.429	ppb	#REF!	0.83	2000.00	ND
60	Ni	1	72	14.600	ppb	#REF!	2.29	2000.00	>RL
63	Cu	1	72	38.610	ppb	#REF!	1.90	2000.00	>RL
66	Zn	1	72	103.600	ppb	#REF!	2.39	2000.00	>RL
75	As	1	72	82.620	ppb	#REF!	2.89	2000.00	>RL
78	Se	1	72	40.760	ppb	#REF!	5.68	2000.00	>RL
88	Sr	2	115	461.100	ppb	#REF!	1.25	2000.00	>RL
95	Mo	2	115	110.300	ppb	#REF!	2.05	2000.00	>RL
107	Ag	2	115	0.013	ppb	#REF!	37.30	500.00	ND
111	Cd	2	115	0.152	ppb	#REF!	27.35	2000.00	ND
118	Sn	2	115	-0.626	ppb	#REF!	14.47	2000.00	ND
121	Sb	2	115	574.000	ppb	#REF!	2.00	500.00	OUTCAL
137	Ba	2	115	95.650	ppb	#REF!	1.69	2000.00	>RL
205	Tl	2	209	0.134	ppb	#REF!	2.50	2000.00	ND
208	Pb	2	209	1.566	ppb	#REF!	3.35	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	993.74	4.69	4259.45	23.3	70 - 120	ISFail
45	Sc	1	158976.02	1.19	152280.61	104.4	70 - 120	
45	Sc	2	4808716.50	0.64	5033455.00	95.5	70 - 120	
72	Ge	1	96516.71	2.18	93230.46	103.5	70 - 120	
115	In	2	5363306.00	1.21	5857332.00	91.6	70 - 120	
209	Bi	2	4376190.00	1.64	5068454.00	86.3	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\086SMPL.D\086SMPL.D#

Date Acquired:	Aug 1 2014 09:25 pm	Sample Name:	**1407278-06A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	-2040000.000	ppb	#REF!	1.92	2000.00	ND
9	Be	2	45	0.025	ppb	#REF!	10.63	2000.00	ND
11	B	2	45	281.900	ppb	#REF!	2.10	2000.00	>RL
23	Na	1	45	20920.000	ppb	#REF!	3.11	25000.00	>RL
24	Mg	1	45	6959.000	ppb	#REF!	3.89	25000.00	>RL
27	Al	1	45	26.270	ppb	#REF!	2.74	10000.00	J
39	K	1	45	2086.000	ppb	#REF!	3.96	25000.00	>RL
44	Ca	2	45	122300.000	ppb	#REF!	1.74	25000.00	OUTCAL
47	Ti	1	45	0.223	ppb	#REF!	47.19	2000.00	ND
51	V	1	45	1.179	ppb	#REF!	3.72	2000.00	ND
52	Cr	1	45	0.022	ppb	#REF!	3.41	2000.00	ND
55	Mn	1	45	4.282	ppb	#REF!	1.45	2000.00	J
56	Fe	1	72	14.160	ppb	#REF!	2.52	10000.00	ND
59	Co	1	72	0.014	ppb	#REF!	11.50	2000.00	ND
60	Ni	1	72	0.056	ppb	#REF!	5.25	2000.00	ND
63	Cu	1	72	0.145	ppb	#REF!	4.23	2000.00	ND
66	Zn	1	72	11.770	ppb	#REF!	2.52	2000.00	>RL
75	As	1	72	1.652	ppb	#REF!	3.15	2000.00	ND
78	Se	1	72	1.350	ppb	#REF!	15.79	2000.00	ND
88	Sr	2	115	610.800	ppb	#REF!	1.44	2000.00	>RL
95	Mo	2	115	1.123	ppb	#REF!	5.90	2000.00	ND
107	Ag	2	115	0.008	ppb	#REF!	16.88	500.00	ND
111	Cd	2	115	0.067	ppb	#REF!	5.31	2000.00	ND
118	Sn	2	115	-0.228	ppb	#REF!	6.16	2000.00	ND
121	Sb	2	115	0.924	ppb	#REF!	12.70	500.00	J
137	Ba	2	115	57.590	ppb	#REF!	1.95	2000.00	>RL
205	Tl	2	209	0.029	ppb	#REF!	6.49	2000.00	ND
208	Pb	2	209	0.142	ppb	#REF!	3.81	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-254.10	92.45	RHigh	4259.45	-6.0	70 - 120	ISFail
45	Sc	1	164960.03	2.73		152280.61	108.3	70 - 120	
45	Sc	2	4956085.50	1.72		5033455.00	98.5	70 - 120	
72	Ge	1	100406.23	2.78		93230.46	107.7	70 - 120	
115	In	2	5692718.00	1.65		5857332.00	97.2	70 - 120	
209	Bi	2	4665997.50	2.47		5068454.00	92.1	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\087SMPL.D\087SMPL.D#

Date Acquired:	Aug 1 2014 09:31 pm	Sample Name:	**1407278-07A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	-801000.000	ppb	#REF!	0.98	2000.00	ND
9	Be	2	45	0.195	ppb	#REF!	6.06	2000.00	ND
11	B	2	45	281.800	ppb	#REF!	0.53	2000.00	>RL
23	Na	1	45	31330.000	ppb	#REF!	2.28	25000.00	OUTCAL
24	Mg	1	45	8285.000	ppb	#REF!	3.27	25000.00	>RL
27	Al	1	45	1213.000	ppb	#REF!	3.66	10000.00	>RL
39	K	1	45	1529.000	ppb	#REF!	2.73	25000.00	>RL
44	Ca	2	45	465400.000	ppb	#REF!	0.43	25000.00	OUTCAL
47	Ti	1	45	18.590	ppb	#REF!	7.78	2000.00	>RL
51	V	1	45	10.180	ppb	#REF!	3.20	2000.00	>RL
52	Cr	1	45	2.706	ppb	#REF!	3.14	2000.00	J
55	Mn	1	45	431.800	ppb	#REF!	2.90	2000.00	>RL
56	Fe	1	72	1825.000	ppb	#REF!	4.38	10000.00	>RL
59	Co	1	72	3.788	ppb	#REF!	1.42	2000.00	J
60	Ni	1	72	3.683	ppb	#REF!	1.54	2000.00	J
63	Cu	1	72	8.247	ppb	#REF!	2.47	2000.00	J
66	Zn	1	72	24.640	ppb	#REF!	1.48	2000.00	>RL
75	As	1	72	3.723	ppb	#REF!	2.36	2000.00	J
78	Se	1	72	22.160	ppb	#REF!	8.16	2000.00	>RL
88	Sr	2	115	910.300	ppb	#REF!	0.73	2000.00	>RL
95	Mo	2	115	0.448	ppb	#REF!	4.16	2000.00	ND
107	Ag	2	115	0.128	ppb	#REF!	11.32	500.00	ND
111	Cd	2	115	0.637	ppb	#REF!	9.24	2000.00	J
118	Sn	2	115	-0.494	ppb	#REF!	1.84	2000.00	ND
121	Sb	2	115	1.519	ppb	#REF!	1.77	500.00	J
137	Ba	2	115	219.400	ppb	#REF!	1.43	2000.00	>RL
205	Tl	2	209	0.049	ppb	#REF!	1.53	2000.00	ND
208	Pb	2	209	10.690	ppb	#REF!	3.15	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	1831.59	2.69	4259.45	43.0	70 - 120	ISFail
45	Sc	1	154167.50	3.47	152280.61	101.2	70 - 120	
45	Sc	2	4692078.00	0.84	5033455.00	93.2	70 - 120	
72	Ge	1	94602.23	2.61	93230.46	101.5	70 - 120	
115	In	2	5366895.50	1.69	5857332.00	91.6	70 - 120	
209	Bi	2	4357296.00	2.08	5068454.00	86.0	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\088SMPL.D\088SMPL.D#

Date Acquired:	Aug 1 2014 09:37 pm	Sample Name:	**1407278-08A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	-1404000.000	ppb	#REF!	1.13	2000.00	ND
9	Be	2	45	0.046	ppb	#REF!	18.93	2000.00	ND
11	B	2	45	368.900	ppb	#REF!	0.89	2000.00	>RL
23	Na	1	45	23570.000	ppb	#REF!	1.59	25000.00	>RL
24	Mg	1	45	6780.000	ppb	#REF!	2.95	25000.00	>RL
27	Al	1	45	268.500	ppb	#REF!	4.30	10000.00	>RL
39	K	1	45	9551.000	ppb	#REF!	2.63	25000.00	>RL
44	Ca	2	45	203000.000	ppb	#REF!	1.35	25000.00	OUTCAL
47	Ti	1	45	3.079	ppb	#REF!	4.56	2000.00	J
51	V	1	45	3.611	ppb	#REF!	2.26	2000.00	J
52	Cr	1	45	0.795	ppb	#REF!	2.64	2000.00	ND
55	Mn	1	45	478.600	ppb	#REF!	2.74	2000.00	>RL
56	Fe	1	72	2243.000	ppb	#REF!	2.51	10000.00	>RL
59	Co	1	72	3.006	ppb	#REF!	0.60	2000.00	J
60	Ni	1	72	2.633	ppb	#REF!	1.16	2000.00	ND
63	Cu	1	72	2.431	ppb	#REF!	1.23	2000.00	J
66	Zn	1	72	9.572	ppb	#REF!	2.45	2000.00	>RL
75	As	1	72	7.630	ppb	#REF!	3.87	2000.00	>RL
78	Se	1	72	1.453	ppb	#REF!	13.36	2000.00	ND
88	Sr	2	115	597.300	ppb	#REF!	1.40	2000.00	>RL
95	Mo	2	115	2.251	ppb	#REF!	2.14	2000.00	J
107	Ag	2	115	0.027	ppb	#REF!	16.08	500.00	ND
111	Cd	2	115	0.112	ppb	#REF!	27.86	2000.00	ND
118	Sn	2	115	-0.623	ppb	#REF!	12.47	2000.00	ND
121	Sb	2	115	27.380	ppb	#REF!	1.76	500.00	>RL
137	Ba	2	115	135.000	ppb	#REF!	2.01	2000.00	>RL
205	Tl	2	209	0.037	ppb	#REF!	14.12	2000.00	ND
208	Pb	2	209	2.348	ppb	#REF!	3.19	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	764.62	20.01	RHigh	4259.45	18.0	70 - 120	ISFail
45	Sc	1	151764.77	2.05		152280.61	99.7	70 - 120	
45	Sc	2	4615709.50	1.02		5033455.00	91.7	70 - 120	
72	Ge	1	92640.51	1.82		93230.46	99.4	70 - 120	
115	In	2	5246368.00	1.12		5857332.00	89.6	70 - 120	
209	Bi	2	4319169.00	1.72		5068454.00	85.2	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\089SMPL.D\089SMPL.D#

Date Acquired:	Aug 1 2014 09:43 pm	Sample Name:	**1407278-09A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	-2467000.000	ppb	#REF!	0.84	2000.00	ND
9	Be	2	45	0.015	ppb	#REF!	11.77	2000.00	ND
11	B	2	45	324.500	ppb	#REF!	1.34	2000.00	>RL
23	Na	1	45	40800.000	ppb	#REF!	0.22	25000.00	OUTCAL
24	Mg	1	45	11700.000	ppb	#REF!	2.55	25000.00	>RL
27	Al	1	45	157.400	ppb	#REF!	1.81	10000.00	>RL
39	K	1	45	3923.000	ppb	#REF!	1.58	25000.00	>RL
44	Ca	2	45	188000.000	ppb	#REF!	1.22	25000.00	OUTCAL
47	Ti	1	45	0.360	ppb	#REF!	24.74	2000.00	ND
51	V	1	45	3.447	ppb	#REF!	2.92	2000.00	J
52	Cr	1	45	0.057	ppb	#REF!	2.81	2000.00	ND
55	Mn	1	45	5.591	ppb	#REF!	0.99	2000.00	J
56	Fe	1	72	29.730	ppb	#REF!	2.44	10000.00	ND
59	Co	1	72	0.116	ppb	#REF!	8.54	2000.00	ND
60	Ni	1	72	2.929	ppb	#REF!	3.92	2000.00	ND
63	Cu	1	72	0.169	ppb	#REF!	2.02	2000.00	ND
66	Zn	1	72	7.204	ppb	#REF!	2.07	2000.00	>RL
75	As	1	72	13.740	ppb	#REF!	0.99	2000.00	>RL
78	Se	1	72	19.190	ppb	#REF!	4.07	2000.00	>RL
88	Sr	2	115	992.500	ppb	#REF!	0.80	2000.00	>RL
95	Mo	2	115	10.820	ppb	#REF!	3.60	2000.00	>RL
107	Ag	2	115	0.002	ppb	#REF!	35.87	500.00	ND
111	Cd	2	115	0.064	ppb	#REF!	36.19	2000.00	ND
118	Sn	2	115	-0.700	ppb	#REF!	6.05	2000.00	ND
121	Sb	2	115	35.400	ppb	#REF!	0.86	500.00	>RL
137	Ba	2	115	41.230	ppb	#REF!	1.19	2000.00	>RL
205	Tl	2	209	0.038	ppb	#REF!	5.54	2000.00	ND
208	Pb	2	209	0.237	ppb	#REF!	5.04	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-1058.64	44.21	RHigh	4259.45	-24.9	70 - 120	ISFail
45	Sc	1	155819.03	0.57		152280.61	102.3	70 - 120	
45	Sc	2	4762227.50	1.38		5033455.00	94.6	70 - 120	
72	Ge	1	95466.37	0.84		93230.46	102.4	70 - 120	
115	In	2	5485396.00	1.79		5857332.00	93.7	70 - 120	
209	Bi	2	4505780.00	0.27		5068454.00	88.9	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\090SMPL.D\090SMPL.D#

Date Acquired:	Aug 1 2014 09:49 pm	Sample Name:	**1407278-10A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	-836800.000	ppb	#REF!	0.57	2000.00	ND
9	Be	2	45	0.015	ppb	#REF!	10.19	2000.00	ND
11	B	2	45	627.900	ppb	#REF!	0.82	2000.00	>RL
23	Na	1	45	23640.000	ppb	#REF!	2.00	25000.00	>RL
24	Mg	1	45	8929.000	ppb	#REF!	2.70	25000.00	>RL
27	Al	1	45	135.900	ppb	#REF!	2.41	10000.00	>RL
39	K	1	45	19260.000	ppb	#REF!	4.06	25000.00	>RL
44	Ca	2	45	165600.000	ppb	#REF!	0.72	25000.00	OUTCAL
47	Ti	1	45	2.588	ppb	#REF!	93.16	2000.00	ND
51	V	1	45	7.573	ppb	#REF!	3.60	2000.00	J
52	Cr	1	45	0.208	ppb	#REF!	6.96	2000.00	ND
55	Mn	1	45	10.390	ppb	#REF!	3.10	2000.00	>RL
56	Fe	1	72	62.260	ppb	#REF!	3.30	10000.00	J
59	Co	1	72	0.109	ppb	#REF!	8.63	2000.00	ND
60	Ni	1	72	0.341	ppb	#REF!	4.52	2000.00	ND
63	Cu	1	72	0.285	ppb	#REF!	3.46	2000.00	ND
66	Zn	1	72	3.986	ppb	#REF!	8.90	2000.00	J
75	As	1	72	25.980	ppb	#REF!	2.18	2000.00	>RL
78	Se	1	72	26.800	ppb	#REF!	2.78	2000.00	>RL
88	Sr	2	115	421.900	ppb	#REF!	1.20	2000.00	>RL
95	Mo	2	115	8.996	ppb	#REF!	2.16	2000.00	>RL
107	Ag	2	115	0.002	ppb	#REF!	6.54	500.00	ND
111	Cd	2	115	0.017	ppb	#REF!	8.74	2000.00	ND
118	Sn	2	115	-0.681	ppb	#REF!	24.57	2000.00	ND
121	Sb	2	115	140.300	ppb	#REF!	1.75	500.00	>RL
137	Ba	2	115	103.700	ppb	#REF!	2.26	2000.00	>RL
205	Tl	2	209	0.083	ppb	#REF!	12.22	2000.00	ND
208	Pb	2	209	0.258	ppb	#REF!	1.97	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	1691.78	4.56	4259.45	39.7	70 - 120	ISFail
45	Sc	1	157858.30	2.53	152280.61	103.7	70 - 120	
45	Sc	2	4768743.50	1.00	5033455.00	94.7	70 - 120	
72	Ge	1	96405.38	2.21	93230.46	103.4	70 - 120	
115	In	2	5609508.00	2.18	5857332.00	95.8	70 - 120	
209	Bi	2	4610214.50	1.41	5068454.00	91.0	70 - 120	

PDS QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\091_PDS.D\091_PDS.D#

Date Acquired:	Aug 1 2014 09:55 pm	Sample Name:	**1407278-03A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	-312900.00	ppb	0.98	2534.72	200	75-125	######	Fail
9	Be	2	45	186.30	ppb	0.80	0.09	200	75-125	93.1	
11	B	2	45	307.90	ppb	0.50	121.50	200	75-125	93.2	
23	Na	1	45	12300.00	ppb	1.29	7586.00	5000	75-125	94.3	
24	Mg	1	45	10580.00	ppb	2.29	5872.00	5000	75-125	94.2	
27	Al	1	45	5354.00	ppb	3.46	278.00	5000	75-125	101.5	
39	K	1	45	7853.00	ppb	2.36	2484.00	5000	75-125	107.4	
44	Ca	2	45	125700.00	ppb	0.49	132000.00	5000	75-125	-126.0	Fail
47	Ti	1	45	208.20	ppb	2.88	3.92	200	75-125	102.1	
51	V	1	45	193.20	ppb	3.03	2.41	200	75-125	95.4	
52	Cr	1	45	193.80	ppb	3.07	0.48	200	75-125	96.7	
55	Mn	1	45	521.00	ppb	2.51	351.40	200	75-125	84.8	
56	Fe	1	72	5443.00	ppb	2.34	769.00	5000	75-125	93.5	
59	Co	1	72	193.30	ppb	1.86	1.33	200	75-125	96.0	
60	Ni	1	72	188.10	ppb	1.92	1.35	200	75-125	93.4	
63	Cu	1	72	189.50	ppb	2.03	6.11	200	75-125	91.7	
66	Zn	1	72	193.70	ppb	3.07	6.00	200	75-125	93.9	
75	As	1	72	209.90	ppb	2.62	7.78	200	75-125	101.1	
78	Se	1	72	197.90	ppb	2.08	0.79	200	75-125	98.6	
88	Sr	2	115	424.30	ppb	2.44	235.20	200	75-125	94.6	
95	Mo	2	115	193.70	ppb	1.16	13.55	200	75-125	90.1	
107	Ag	2	115	184.10	ppb	1.93	0.06	200	75-125	92.0	
111	Cd	2	115	194.70	ppb	1.99	0.10	200	75-125	97.3	
118	Sn	2	115	205.60	ppb	2.08	-0.58	200	75-125	103.1	
121	Sb	2	115	398.80	ppb	1.16	218.40	200	75-125	90.2	
137	Ba	2	115	269.60	ppb	1.72	75.96	200	75-125	96.8	
205	Tl	2	209	206.00	ppb	1.37	0.16	200	75-125	102.9	
208	Pb	2	209	202.40	ppb	1.46	1.61	200	75-125	100.4	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	RHig	2534.72	5.30	4259.45	59.5	70	-	120	ISFail
45	Sc	1		153449.73	1.64	152280.61	100.8	70	-	120	
45	Sc	2		4717237.50	1.54	5033455.00	93.7	70	-	120	
72	Ge	1		94006.12	1.66	93230.46	100.8	70	-	120	
115	In	2		5377131.50	2.43	5857332.00	91.8	70	-	120	
209	Bi	2		4438738.50	1.53	5068454.00	87.6	70	-	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\092_MS.D\092_MS.D#

Date Acquired:	Aug 1 2014 10:01 pm	Sample Name:	**1407278-03A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	-301600.00	ppb	0.65	2776.63	200	80-120	######	Fail
9	Be	2	45	197.40	ppb	0.50	0.09	200	80-120	98.7	
11	B	2	45	315.70	ppb	0.63	121.50	200	80-120	97.1	
23	Na	1	45	12160.00	ppb	1.68	7586.00	5000	80-120	91.5	
24	Mg	1	45	10450.00	ppb	2.75	5872.00	5000	80-120	91.6	
27	Al	1	45	5204.00	ppb	3.02	278.00	5000	80-120	98.5	
39	K	1	45	7555.00	ppb	2.26	2484.00	5000	80-120	101.4	
44	Ca	2	45	131300.00	ppb	0.23	########	5000	80-120	-14.0	Fail
47	Ti	1	45	215.80	ppb	1.95	3.92	200	80-120	105.9	
51	V	1	45	206.20	ppb	2.02	2.41	200	80-120	101.9	
52	Cr	1	45	201.00	ppb	2.35	0.48	200	80-120	100.3	
55	Mn	1	45	548.20	ppb	1.88	351.40	200	80-120	98.4	
56	Fe	1	72	5449.00	ppb	2.11	769.00	5000	80-120	93.6	
59	Co	1	72	199.10	ppb	1.45	1.33	200	80-120	98.9	
60	Ni	1	72	197.20	ppb	1.24	1.35	200	80-120	97.9	
63	Cu	1	72	198.70	ppb	0.78	6.11	200	80-120	96.3	
66	Zn	1	72	207.60	ppb	1.05	6.00	200	80-120	100.8	
75	As	1	72	223.50	ppb	1.99	7.78	200	80-120	107.9	
78	Se	1	72	208.20	ppb	4.41	0.79	200	80-120	103.7	
88	Sr	2	115	442.20	ppb	1.44	235.20	200	80-120	103.5	
95	Mo	2	115	213.10	ppb	1.38	13.55	200	80-120	99.8	
107	Ag	2	115	195.40	ppb	1.10	0.06	200	80-120	97.7	
111	Cd	2	115	204.10	ppb	2.44	0.10	200	80-120	102.0	
118	Sn	2	115	213.40	ppb	1.33	-0.58	200	80-120	107.0	
121	Sb	2	115	425.40	ppb	1.57	218.40	200	80-120	103.5	
137	Ba	2	115	282.10	ppb	1.98	75.96	200	80-120	103.1	
205	Tl	2	209	218.00	ppb	0.88	0.16	200	80-120	108.9	
208	Pb	2	209	209.80	ppb	0.84	1.61	200	80-120	104.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	2776.63	2.19	4259.45	65.2	70 -	120	ISFail
45	Sc	1	153085.17	1.94	152280.61	100.5	70 -	120	
45	Sc	2	4644971.50	1.00	5033455.00	92.3	70 -	120	
72	Ge	1	94231.09	1.39	93230.46	101.1	70 -	120	
115	In	2	5324385.50	1.62	5857332.00	90.9	70 -	120	
209	Bi	2	4416274.50	1.57	5068454.00	87.1	70 -	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\093_MS.D\093_MS.D#

Date Acquired:	Aug 1 2014 10:07 pm	Sample Name:	**1407278-03A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	-301800.00	ppb	0.48	2670.77	200	80-120	######	Fail
9	Be	2	45	192.90	ppb	0.78	0.09	200	80-120	96.4	
11	B	2	45	312.00	ppb	0.91	121.50	200	80-120	95.3	
23	Na	1	45	12000.00	ppb	1.34	7586.00	5000	80-120	88.3	
24	Mg	1	45	10330.00	ppb	2.22	5872.00	5000	80-120	89.2	
27	Al	1	45	5169.00	ppb	3.40	278.00	5000	80-120	97.8	
39	K	1	45	7519.00	ppb	2.61	2484.00	5000	80-120	100.7	
44	Ca	2	45	130000.00	ppb	0.48	########	5000	80-120	-40.0	Fail
47	Ti	1	45	211.30	ppb	4.98	3.92	200	80-120	103.7	
51	V	1	45	203.60	ppb	1.95	2.41	200	80-120	100.6	
52	Cr	1	45	198.20	ppb	2.36	0.48	200	80-120	98.9	
55	Mn	1	45	541.60	ppb	2.46	351.40	200	80-120	95.1	
56	Fe	1	72	5468.00	ppb	2.65	769.00	5000	80-120	94.0	
59	Co	1	72	198.70	ppb	2.01	1.33	200	80-120	98.7	
60	Ni	1	72	195.50	ppb	2.39	1.35	200	80-120	97.1	
63	Cu	1	72	197.70	ppb	1.84	6.11	200	80-120	95.8	
66	Zn	1	72	204.30	ppb	1.81	6.00	200	80-120	99.2	
75	As	1	72	219.50	ppb	1.58	7.78	200	80-120	105.9	
78	Se	1	72	210.30	ppb	2.89	0.79	200	80-120	104.8	
88	Sr	2	115	437.40	ppb	0.41	235.20	200	80-120	101.1	
95	Mo	2	115	210.30	ppb	1.18	13.55	200	80-120	98.4	
107	Ag	2	115	194.40	ppb	0.36	0.06	200	80-120	97.2	
111	Cd	2	115	200.20	ppb	0.83	0.10	200	80-120	100.0	
118	Sn	2	115	213.90	ppb	0.96	-0.58	200	80-120	107.2	
121	Sb	2	115	423.90	ppb	1.14	218.40	200	80-120	102.8	
137	Ba	2	115	281.40	ppb	1.16	75.96	200	80-120	102.7	
205	Tl	2	209	214.30	ppb	1.61	0.16	200	80-120	107.1	
208	Pb	2	209	209.30	ppb	1.12	1.61	200	80-120	103.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	2670.77	2.37	4259.45	62.7	70 -	120	ISFail
45	Sc	1	156025.08	1.54	152280.61	102.5	70 -	120	
45	Sc	2	4748919.50	0.45	5033455.00	94.3	70 -	120	
72	Ge	1	95224.01	0.67	93230.46	102.1	70 -	120	
115	In	2	5511840.00	0.43	5857332.00	94.1	70 -	120	
209	Bi	2	4578878.00	1.39	5068454.00	90.3	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\094CCV1.D\094CCV1.D#

Date Acquired:	Aug 1 2014 10:13 pm	Sample Name:	**CCV3-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	7020.00	ppb	3.56	200.00	90 -	110	3510.0	Fail
9	Be	2	45	191.50	ppb	0.94	200.00	90 -	110	95.8	
11	B	2	45	206.20	ppb	1.15	200.00	90 -	110	103.1	
23	Na	1	45	4904.00	ppb	1.93	5000.00	90 -	110	98.1	
24	Mg	1	45	4838.00	ppb	3.28	5000.00	90 -	110	96.8	
27	Al	1	45	5040.00	ppb	3.77	5000.00	90 -	110	100.8	
39	K	1	45	5168.00	ppb	2.78	5000.00	90 -	110	103.4	
44	Ca	2	45	5218.00	ppb	3.07	5000.00	90 -	110	104.4	
47	Ti	1	45	208.40	ppb	3.31	200.00	90 -	110	104.2	
51	V	1	45	199.30	ppb	2.77	200.00	90 -	110	99.7	
52	Cr	1	45	199.00	ppb	3.10	200.00	90 -	110	99.5	
55	Mn	1	45	209.30	ppb	3.31	200.00	90 -	110	104.7	
56	Fe	1	72	4877.00	ppb	3.28	5000.00	90 -	110	97.5	
59	Co	1	72	202.90	ppb	2.46	200.00	90 -	110	101.5	
60	Ni	1	72	201.10	ppb	1.81	200.00	90 -	110	100.6	
63	Cu	1	72	200.90	ppb	2.10	200.00	90 -	110	100.5	
66	Zn	1	72	202.20	ppb	2.77	200.00	90 -	110	101.1	
75	As	1	72	211.00	ppb	2.58	200.00	90 -	110	105.5	
78	Se	1	72	204.30	ppb	2.37	200.00	90 -	110	102.2	
88	Sr	2	115	213.80	ppb	1.59	200.00	90 -	110	106.9	
95	Mo	2	115	193.40	ppb	1.11	200.00	90 -	110	96.7	
107	Ag	2	115	196.40	ppb	1.99	200.00	90 -	110	98.2	
111	Cd	2	115	200.40	ppb	1.44	200.00	90 -	110	100.2	
118	Sn	2	115	206.00	ppb	1.40	200.00	90 -	110	103.0	
121	Sb	2	115	196.40	ppb	1.14	200.00	90 -	110	98.2	
137	Ba	2	115	205.80	ppb	1.41	200.00	90 -	110	102.9	
205	Tl	2	209	211.70	ppb	1.86	200.00	90 -	110	105.9	
208	Pb	2	209	205.90	ppb	1.71	200.00	90 -	110	103.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3246.68	2.01	4259.45	76.2	70 -	120		
45	Sc	1	153918.05	2.10	152280.61	101.1	70 -	120		
45	Sc	2	4797315.50	0.50	5033455.00	95.3	70 -	120		
72	Ge	1	94049.49	1.50	93230.46	100.9	70 -	120		
115	In	2	5595957.50	0.91	5857332.00	95.5	70 -	120		
209	Bi	2	4644103.00	1.59	5068454.00	91.6	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\098LCVL.D\098LCVL.D#

Date Acquired:	Aug 1 2014 10:37 pm	Sample Name:	**LCVL3-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8381.00	ppb	5.10	5.00	70 -	130	######	Fail
9	Be	2	45	1.09	ppb	4.53	1.00	70 -	130	109.3	
11	B	2	45	25.38	ppb	1.95	20.00	70 -	130	126.9	
23	Na	1	45	119.50	ppb	2.17	100.00	70 -	130	119.5	
24	Mg	1	45	107.80	ppb	3.14	100.00	70 -	130	107.8	
27	Al	1	45	110.30	ppb	2.77	100.00	70 -	130	110.3	
39	K	1	45	133.90	ppb	1.45	100.00	70 -	130	133.9	Fail
44	Ca	2	45	29.40	ppb	3.48	100.00	70 -	130	29.4	Fail
47	Ti	1	45	6.19	ppb	9.18	5.00	70 -	130	123.7	
51	V	1	45	1.16	ppb	4.67	1.00	70 -	130	116.3	
52	Cr	1	45	5.53	ppb	5.55	5.00	70 -	130	110.5	
55	Mn	1	45	5.91	ppb	1.10	5.00	70 -	130	118.3	
56	Fe	1	72	105.20	ppb	3.30	100.00	70 -	130	105.2	
59	Co	1	72	5.50	ppb	2.36	5.00	70 -	130	109.9	
60	Ni	1	72	5.33	ppb	5.01	5.00	70 -	130	106.6	
63	Cu	1	72	5.13	ppb	2.20	5.00	70 -	130	102.6	
66	Zn	1	72	4.45	ppb	1.49	5.00	70 -	130	88.9	
75	As	1	72	5.91	ppb	1.01	5.00	70 -	130	118.3	
78	Se	1	72	5.83	ppb	5.39	5.00	70 -	130	116.7	
88	Sr	2	115	5.82	ppb	3.15	5.00	70 -	130	116.4	
95	Mo	2	115	5.32	ppb	2.93	5.00	70 -	130	106.4	
107	Ag	2	115	2.13	ppb	1.39	2.00	70 -	130	106.7	
111	Cd	2	115	1.24	ppb	2.78	1.00	70 -	130	123.5	
118	Sn	2	115	4.96	ppb	0.90	5.00	70 -	130	99.1	
121	Sb	2	115	2.33	ppb	5.07	2.00	70 -	130	116.6	
137	Ba	2	115	5.42	ppb	1.51	5.00	70 -	130	108.5	
205	Tl	2	209	1.23	ppb	2.36	1.00	70 -	130	122.8	
208	Pb	2	209	1.18	ppb	1.20	1.00	70 -	130	118.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3461.09	1.22	4259.45	81.3	70 -	120		
45	Sc	1	152669.83	3.26	152280.61	100.3	70 -	120		
45	Sc	2	4632986.50	0.42	5033455.00	92.0	70 -	120		
72	Ge	1	93694.88	2.12	93230.46	100.5	70 -	120		
115	In	2	5400878.50	0.83	5857332.00	92.2	70 -	120		
209	Bi	2	4492190.00	1.24	5068454.00	88.6	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\101_CCB.D\101_CCB.D#

Date Acquired:	Aug 1 2014 10:55 pm	Sample Name:	**CCB3-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	8908.000	ppb	11.91	2.00	2.00	Failsoil
9	Be	2	45	0.049	ppb	24.53	0.10	0.30	
11	B	2	45	3.072	ppb	1.51	10.00	10.00	
23	Na	1	45	7.678	ppb	0.46	50.00	#####	
24	Mg	1	45	-0.394	ppb	23.09	50.00	#####	
27	Al	1	45	-1.014	ppb	7.10	50.00	10.00	
39	K	1	45	23.580	ppb	2.88	50.00	#####	
44	Ca	2	45	-95.390	ppb	7.77	50.00	#####	
47	Ti	1	45	-0.071	ppb	86.60	4.00	3.00	
51	V	1	45	0.035	ppb	14.92	4.00	3.00	
52	Cr	1	45	0.005	ppb	2.12	2.00	2.00	
55	Mn	1	45	0.223	ppb	4.10	2.00	3.00	
56	Fe	1	72	0.899	ppb	8.07	50.00	50.00	
59	Co	1	72	0.027	ppb	9.76	2.00	3.00	
60	Ni	1	72	-0.072	ppb	7.57	2.00	3.00	
63	Cu	1	72	-0.265	ppb	10.46	2.00	2.00	
66	Zn	1	72	-0.881	ppb	14.17	4.00	2.00	
75	As	1	72	0.134	ppb	5.54	2.00	2.00	
78	Se	1	72	0.310	ppb	6.15	0.60	2.00	
88	Sr	2	115	0.097	ppb	19.62	4.00	3.00	
95	Mo	2	115	0.153	ppb	10.91	2.00	2.00	
107	Ag	2	115	0.027	ppb	21.51	0.40	1.00	
111	Cd	2	115	0.042	ppb	80.71	0.40	0.30	
118	Sn	2	115	-0.634	ppb	5.42	4.00	3.00	
121	Sb	2	115	0.108	ppb	17.41	2.00	0.80	
137	Ba	2	115	0.026	ppb	19.87	2.00	3.00	
205	Tl	2	209	0.057	ppb	17.65	2.00	0.50	
208	Pb	2	209	0.028	ppb	18.02	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3331.93	3.83	4259.45	78.2	70 - 120	
45	Sc	1	151171.67	2.54	152280.61	99.3	70 - 120	
45	Sc	2	4657409.50	1.04	5033455.00	92.5	70 - 120	
72	Ge	1	93948.45	2.33	93230.46	100.8	70 - 120	
115	In	2	5430258.00	1.17	5857332.00	92.7	70 - 120	
209	Bi	2	4550431.50	1.36	5068454.00	89.8	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\108SMPL.D\108SMPL.D#

Date Acquired:	Aug 1 2014 11:38 pm	Sample Name:	**1407278-11A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	-1263000.000	ppb	#REF!	0.23	2000.00	ND
9	Be	2	45	0.013	ppb	#REF!	10.83	2000.00	ND
11	B	2	45	364.500	ppb	#REF!	0.59	2000.00	>RL
23	Na	1	45	34440.000	ppb	#REF!	2.22	25000.00	OUTCAL
24	Mg	1	45	11200.000	ppb	#REF!	2.62	25000.00	>RL
27	Al	1	45	50.600	ppb	#REF!	3.36	10000.00	>RL
39	K	1	45	11970.000	ppb	#REF!	2.79	25000.00	>RL
44	Ca	2	45	198400.000	ppb	#REF!	0.42	25000.00	OUTCAL
47	Ti	1	45	0.342	ppb	#REF!	31.23	2000.00	ND
51	V	1	45	18.090	ppb	#REF!	3.56	2000.00	>RL
52	Cr	1	45	0.167	ppb	#REF!	4.41	2000.00	ND
55	Mn	1	45	4.473	ppb	#REF!	10.38	2000.00	J
56	Fe	1	72	11.030	ppb	#REF!	6.36	10000.00	ND
59	Co	1	72	0.018	ppb	#REF!	2.82	2000.00	ND
60	Ni	1	72	0.265	ppb	#REF!	1.73	2000.00	ND
63	Cu	1	72	-0.035	ppb	#REF!	6.36	2000.00	ND
66	Zn	1	72	1.059	ppb	#REF!	8.54	2000.00	ND
75	As	1	72	433.000	ppb	#REF!	2.27	2000.00	>RL
78	Se	1	72	106.400	ppb	#REF!	3.89	2000.00	>RL
88	Sr	2	115	557.500	ppb	#REF!	0.98	2000.00	>RL
95	Mo	2	115	18.700	ppb	#REF!	0.38	2000.00	>RL
107	Ag	2	115	0.006	ppb	#REF!	22.76	500.00	ND
111	Cd	2	115	0.031	ppb	#REF!	49.78	2000.00	ND
118	Sn	2	115	-0.680	ppb	#REF!	0.55	2000.00	ND
121	Sb	2	115	313.900	ppb	#REF!	2.35	500.00	>RL
137	Ba	2	115	58.570	ppb	#REF!	0.69	2000.00	>RL
205	Tl	2	209	0.062	ppb	#REF!	7.98	2000.00	ND
208	Pb	2	209	0.037	ppb	#REF!	9.88	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	950.15	15.80	RHigh	4259.45	22.3	70 - 120	ISFail
45	Sc	1	153903.11	1.67		152280.61	101.1	70 - 120	
45	Sc	2	4756065.00	0.48		5033455.00	94.5	70 - 120	
72	Ge	1	95710.38	1.66		93230.46	102.7	70 - 120	
115	In	2	5508153.50	1.73		5857332.00	94.0	70 - 120	
209	Bi	2	4452376.00	1.56		5068454.00	87.8	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\109SMPL.D\109SMPL.D#

Date Acquired:	Aug 1 2014 11:44 pm	Sample Name:	**1407278-12A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	-1222000.000	ppb	#REF!	1.62	2000.00	ND
9	Be	2	45	0.025	ppb	#REF!	9.76	2000.00	ND
11	B	2	45	191.800	ppb	#REF!	1.50	2000.00	>RL
23	Na	1	45	119400.000	ppb	#REF!	1.02	25000.00	OUTCAL
24	Mg	1	45	16840.000	ppb	#REF!	2.86	25000.00	>RL
27	Al	1	45	74.850	ppb	#REF!	0.46	10000.00	>RL
39	K	1	45	5777.000	ppb	#REF!	2.50	25000.00	>RL
44	Ca	2	45	110300.000	ppb	#REF!	2.24	25000.00	OUTCAL
47	Ti	1	45	1.888	ppb	#REF!	11.84	2000.00	ND
51	V	1	45	4.042	ppb	#REF!	1.91	2000.00	J
52	Cr	1	45	0.403	ppb	#REF!	0.21	2000.00	ND
55	Mn	1	45	12.850	ppb	#REF!	0.32	2000.00	>RL
56	Fe	1	72	39.710	ppb	#REF!	1.26	10000.00	ND
59	Co	1	72	2.497	ppb	#REF!	1.79	2000.00	ND
60	Ni	1	72	14.470	ppb	#REF!	1.02	2000.00	>RL
63	Cu	1	72	37.980	ppb	#REF!	1.12	2000.00	>RL
66	Zn	1	72	103.000	ppb	#REF!	2.06	2000.00	>RL
75	As	1	72	83.510	ppb	#REF!	1.65	2000.00	>RL
78	Se	1	72	41.100	ppb	#REF!	1.90	2000.00	>RL
88	Sr	2	115	457.600	ppb	#REF!	2.74	2000.00	>RL
95	Mo	2	115	107.500	ppb	#REF!	2.94	2000.00	>RL
107	Ag	2	115	0.012	ppb	#REF!	30.54	500.00	ND
111	Cd	2	115	0.131	ppb	#REF!	21.23	2000.00	ND
118	Sn	2	115	-0.624	ppb	#REF!	8.80	2000.00	ND
121	Sb	2	115	565.400	ppb	#REF!	3.27	500.00	OUTCAL
137	Ba	2	115	94.870	ppb	#REF!	3.18	2000.00	>RL
205	Tl	2	209	0.109	ppb	#REF!	8.61	2000.00	ND
208	Pb	2	209	1.693	ppb	#REF!	2.26	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	1126.51	6.30	RHigh	4259.45	26.4	70 - 120	ISFail
45	Sc	1	157114.73	0.98		152280.61	103.2	70 - 120	
45	Sc	2	4521260.50	1.62		5033455.00	89.8	70 - 120	
72	Ge	1	96929.78	1.07		93230.46	104.0	70 - 120	
115	In	2	5235352.50	2.26		5857332.00	89.4	70 - 120	
209	Bi	2	4202406.00	2.76		5068454.00	82.9	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\110SMPL.D\110SMPL.D#

Date Acquired:	Aug 1 2014 11:50 pm	Sample Name:	**1407278-13A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	-1282000.000	ppb	#REF!	3.90	2000.00	ND
9	Be	2	45	0.014	ppb	#REF!	38.02	2000.00	ND
11	B	2	45	358.700	ppb	#REF!	3.76	2000.00	>RL
23	Na	1	45	33480.000	ppb	#REF!	3.25	25000.00	OUTCAL
24	Mg	1	45	11020.000	ppb	#REF!	4.01	25000.00	>RL
27	Al	1	45	12.760	ppb	#REF!	5.78	10000.00	J
39	K	1	45	11930.000	ppb	#REF!	4.24	25000.00	>RL
44	Ca	2	45	199000.000	ppb	#REF!	4.13	25000.00	OUTCAL
47	Ti	1	45	0.620	ppb	#REF!	85.07	2000.00	ND
51	V	1	45	17.740	ppb	#REF!	5.25	2000.00	>RL
52	Cr	1	45	0.078	ppb	#REF!	6.18	2000.00	ND
55	Mn	1	45	2.354	ppb	#REF!	7.24	2000.00	ND
56	Fe	1	72	11.230	ppb	#REF!	2.87	10000.00	ND
59	Co	1	72	0.021	ppb	#REF!	7.88	2000.00	ND
60	Ni	1	72	0.237	ppb	#REF!	7.36	2000.00	ND
63	Cu	1	72	-0.071	ppb	#REF!	3.71	2000.00	ND
66	Zn	1	72	1.115	ppb	#REF!	1.38	2000.00	ND
75	As	1	72	424.300	ppb	#REF!	3.71	2000.00	>RL
78	Se	1	72	105.400	ppb	#REF!	6.43	2000.00	>RL
88	Sr	2	115	564.300	ppb	#REF!	4.27	2000.00	>RL
95	Mo	2	115	19.100	ppb	#REF!	5.10	2000.00	>RL
107	Ag	2	115	0.009	ppb	#REF!	19.05	500.00	ND
111	Cd	2	115	0.022	ppb	#REF!	11.18	2000.00	ND
118	Sn	2	115	-0.568	ppb	#REF!	11.34	2000.00	ND
121	Sb	2	115	317.500	ppb	#REF!	7.02	500.00	>RL
137	Ba	2	115	59.170	ppb	#REF!	4.86	2000.00	>RL
205	Tl	2	209	0.073	ppb	#REF!	20.57	2000.00	ND
208	Pb	2	209	0.015	ppb	#REF!	16.55	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	980.07	5.99	RHigh	4259.45	23.0	70 - 120	ISFail
45	Sc	1	155102.72	3.14		152280.61	101.9	70 - 120	
45	Sc	2	4561887.00	4.51		5033455.00	90.6	70 - 120	
72	Ge	1	95923.76	2.74		93230.46	102.9	70 - 120	
115	In	2	5326166.50	4.81		5857332.00	90.9	70 - 120	
209	Bi	2	4312373.00	5.87	RHigh	5068454.00	85.1	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\111CCV1.D\111CCV1.D#

Date Acquired:	Aug 1 2014 11:56 pm	Sample Name:	**CCV4-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	5042.00	ppb	1.16	200.00	90 -	110	2521.0	Fail
9	Be	2	45	189.90	ppb	1.09	200.00	90 -	110	95.0	
11	B	2	45	201.50	ppb	0.76	200.00	90 -	110	100.8	
23	Na	1	45	5138.00	ppb	0.84	5000.00	90 -	110	102.8	
24	Mg	1	45	4852.00	ppb	2.16	5000.00	90 -	110	97.0	
27	Al	1	45	5083.00	ppb	3.32	5000.00	90 -	110	101.7	
39	K	1	45	5206.00	ppb	2.12	5000.00	90 -	110	104.1	
44	Ca	2	45	5232.00	ppb	3.02	5000.00	90 -	110	104.6	
47	Ti	1	45	206.60	ppb	3.49	200.00	90 -	110	103.3	
51	V	1	45	198.60	ppb	1.69	200.00	90 -	110	99.3	
52	Cr	1	45	198.40	ppb	2.34	200.00	90 -	110	99.2	
55	Mn	1	45	209.50	ppb	1.81	200.00	90 -	110	104.8	
56	Fe	1	72	4810.00	ppb	2.42	5000.00	90 -	110	96.2	
59	Co	1	72	199.00	ppb	1.22	200.00	90 -	110	99.5	
60	Ni	1	72	199.20	ppb	1.66	200.00	90 -	110	99.6	
63	Cu	1	72	196.90	ppb	1.81	200.00	90 -	110	98.5	
66	Zn	1	72	202.10	ppb	1.19	200.00	90 -	110	101.1	
75	As	1	72	214.20	ppb	2.24	200.00	90 -	110	107.1	
78	Se	1	72	204.20	ppb	2.14	200.00	90 -	110	102.1	
88	Sr	2	115	218.40	ppb	0.39	200.00	90 -	110	109.2	
95	Mo	2	115	194.20	ppb	0.56	200.00	90 -	110	97.1	
107	Ag	2	115	197.00	ppb	0.27	200.00	90 -	110	98.5	
111	Cd	2	115	200.60	ppb	0.17	200.00	90 -	110	100.3	
118	Sn	2	115	207.10	ppb	0.50	200.00	90 -	110	103.6	
121	Sb	2	115	198.70	ppb	1.06	200.00	90 -	110	99.4	
137	Ba	2	115	207.10	ppb	0.20	200.00	90 -	110	103.6	
205	Tl	2	209	213.80	ppb	0.74	200.00	90 -	110	106.9	
208	Pb	2	209	205.50	ppb	0.45	200.00	90 -	110	102.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3161.59	4.11	4259.45	74.2	70 -	120		
45	Sc	1	144247.86	1.28	152280.61	94.7	70 -	120		
45	Sc	2	4457268.50	0.39	5033455.00	88.6	70 -	120		
72	Ge	1	88978.53	0.91	93230.46	95.4	70 -	120		
115	In	2	5170060.00	1.22	5857332.00	88.3	70 -	120		
209	Bi	2	4257468.50	0.37	5068454.00	84.0	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\116LCVL.D\116LCVL.D#

Date Acquired:	Aug 2 2014 12:26 am	Sample Name:	**LCVL4-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8367.00	ppb	5.83	5.00	70 -	130	######	Fail
9	Be	2	45	1.03	ppb	6.13	1.00	70 -	130	103.0	
11	B	2	45	23.75	ppb	0.80	20.00	70 -	130	118.8	
23	Na	1	45	153.20	ppb	2.34	100.00	70 -	130	153.2	Fail
24	Mg	1	45	103.90	ppb	3.33	100.00	70 -	130	103.9	
27	Al	1	45	108.90	ppb	3.12	100.00	70 -	130	108.9	
39	K	1	45	151.80	ppb	0.88	100.00	70 -	130	151.8	Fail
44	Ca	2	45	21.70	ppb	3.96	100.00	70 -	130	21.7	Fail
47	Ti	1	45	5.63	ppb	3.16	5.00	70 -	130	112.6	
51	V	1	45	1.13	ppb	0.89	1.00	70 -	130	112.8	
52	Cr	1	45	5.32	ppb	2.00	5.00	70 -	130	106.4	
55	Mn	1	45	6.24	ppb	4.42	5.00	70 -	130	124.7	
56	Fe	1	72	101.80	ppb	2.39	100.00	70 -	130	101.8	
59	Co	1	72	5.34	ppb	1.21	5.00	70 -	130	106.8	
60	Ni	1	72	5.15	ppb	1.74	5.00	70 -	130	103.0	
63	Cu	1	72	4.99	ppb	0.47	5.00	70 -	130	99.9	
66	Zn	1	72	4.24	ppb	5.37	5.00	70 -	130	84.8	
75	As	1	72	5.87	ppb	4.51	5.00	70 -	130	117.4	
78	Se	1	72	6.07	ppb	3.43	5.00	70 -	130	121.5	
88	Sr	2	115	5.76	ppb	0.79	5.00	70 -	130	115.2	
95	Mo	2	115	5.14	ppb	2.52	5.00	70 -	130	102.8	
107	Ag	2	115	2.09	ppb	3.48	2.00	70 -	130	104.7	
111	Cd	2	115	1.20	ppb	1.80	1.00	70 -	130	119.9	
118	Sn	2	115	4.98	ppb	1.97	5.00	70 -	130	99.5	
121	Sb	2	115	2.22	ppb	2.04	2.00	70 -	130	111.0	
137	Ba	2	115	5.34	ppb	2.40	5.00	70 -	130	106.9	
205	Tl	2	209	1.14	ppb	1.61	1.00	70 -	130	113.6	
208	Pb	2	209	1.12	ppb	1.67	1.00	70 -	130	111.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3122.43	3.47	4259.45	73.3	70 -	120		
45	Sc	1	147276.47	2.30	152280.61	96.7	70 -	120		
45	Sc	2	4419493.50	1.62	5033455.00	87.8	70 -	120		
72	Ge	1	90260.09	1.83	93230.46	96.8	70 -	120		
115	In	2	5147973.50	1.28	5857332.00	87.9	70 -	120		
209	Bi	2	4291316.50	1.36	5068454.00	84.7	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\118_CCB.D\118_CCB.D#

Date Acquired:	Aug 2 2014 12:39 am	Sample Name:	**CCB4-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	9279.000	ppb	2.10	2.00	2.00	Failsoil
9	Be	2	45	0.034	ppb	14.75	0.10	0.30	
11	B	2	45	2.494	ppb	0.33	10.00	10.00	
23	Na	1	45	38.930	ppb	1.83	50.00	#####	
24	Mg	1	45	0.330	ppb	20.20	50.00	#####	
27	Al	1	45	-1.360	ppb	13.08	50.00	10.00	
39	K	1	45	30.110	ppb	2.23	50.00	#####	
44	Ca	2	45	-92.680	ppb	9.32	50.00	#####	
47	Ti	1	45	-0.044	ppb	99.97	4.00	3.00	
51	V	1	45	0.055	ppb	5.81	4.00	3.00	
52	Cr	1	45	0.061	ppb	13.60	2.00	2.00	
55	Mn	1	45	0.594	ppb	5.63	2.00	3.00	
56	Fe	1	72	1.082	ppb	4.45	50.00	50.00	
59	Co	1	72	0.004	ppb	18.33	2.00	3.00	
60	Ni	1	72	-0.110	ppb	6.19	2.00	3.00	
63	Cu	1	72	-0.255	ppb	1.23	2.00	2.00	
66	Zn	1	72	-0.882	ppb	10.66	4.00	2.00	
75	As	1	72	0.148	ppb	9.91	2.00	2.00	
78	Se	1	72	0.320	ppb	11.43	0.60	2.00	
88	Sr	2	115	0.108	ppb	23.22	4.00	3.00	
95	Mo	2	115	0.153	ppb	16.50	2.00	2.00	
107	Ag	2	115	0.022	ppb	15.16	0.40	1.00	
111	Cd	2	115	0.046	ppb	32.27	0.40	0.30	
118	Sn	2	115	-0.659	ppb	2.76	4.00	3.00	
121	Sb	2	115	0.083	ppb	12.77	2.00	0.80	
137	Ba	2	115	0.046	ppb	22.96	2.00	3.00	
205	Tl	2	209	0.049	ppb	13.72	2.00	0.50	
208	Pb	2	209	0.023	ppb	10.09	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3257.84	3.05	4259.45	76.5	70 - 120	
45	Sc	1	143235.61	1.97	152280.61	94.1	70 - 120	
45	Sc	2	4436141.50	1.32	5033455.00	88.1	70 - 120	
72	Ge	1	89383.31	2.28	93230.46	95.9	70 - 120	
115	In	2	5136497.00	1.98	5857332.00	87.7	70 - 120	
209	Bi	2	4313787.00	2.01	5068454.00	85.1	70 - 120	

ICP-MS3_140801B
For

DHL Work Order
1407278

Lab Data Review Check List

EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS3_140801B SOP: Metals-ICP-MS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			X
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			X
P/A Factor	Before ICAL	Increasing trend	X			
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			X
ICSAB (N/A for Method 200.8)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLS and ICSA/ICSAB is N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			X
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%			X	
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%		X		
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%		X		
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)		X		
Dilution Test (SD) - RPD	Every Batch	10		X		
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)	X			

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			x
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> 5% of highest standard	~~X~~	X		
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality	X			x
2. Are all corrective actions included?		x		~~X~~	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?		x		~~X~~	

TECHNICAL DIRECTOR / QA MANAGER APPROVAL SIGNATURE AND DATE STAMP:

QA APPROVED
By John DuPont at 11:03:14 AM, 8/5/2014

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> MDL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag data / Case narrative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
x LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

See notes in Run Log

SEE DILUTIONS IN ICPMS3_140804A.

Analyst: Karyn Lane Date of Completion: 8/4/2014

Second-Level Review: Evelyn Lane Ferrero Reviewer Date Stamp:

REVIEWED
By Evelyn Ferrero at 9:02:02 AM, 8/5/2014

DHL Analytical, Inc.

Run ID: **ICP-MS3_140801B** **Run No.:** 74657

Analytical Run Date: 8/1/2014 **InstrumentID:** ICP-MS3

Analyst: Karyn Lane

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TW	CAL	R74657	8/1/2014 1:09:00 PM		
1/20 ppb STD.	1	ICPMS_TW	CAL	R74657	8/1/2014 1:15:00 PM		
10/200 ppb STD.	1	ICPMS_TW	CAL	R74657	8/1/2014 1:21:00 PM		
50/1000 ppb STD.	1	ICPMS_TW	CAL	R74657	8/1/2014 1:27:00 PM		
100/2000 ppb STD.	1	ICPMS_TW	CAL	R74657	8/1/2014 1:33:00 PM		
250/5000 ppb STD.	1	ICPMS_TW	CAL	R74657	8/1/2014 1:39:00 PM		
500/10000 ppb STD.	1	ICPMS_TW	CAL	R74657	8/1/2014 1:45:00 PM		
2000/25000 ppb STD.	1	ICPMS_TW	CAL	R74657	8/1/2014 1:51:00 PM		
ICSA-140801	1	ICPMS_TW	ICSA	R74657	8/1/2014 2:09:00 PM		
ICSAB-140801	1	ICPMS_TW	ICSB	R74657	8/1/2014 2:15:00 PM		
ICV1-140801	1	ICPMS_TW	ICV	R74657	8/1/2014 2:57:00 PM		
ILCVL-140801	1	6020A_W	LCVL	R74657	8/1/2014 3:03:00 PM		Ca low. QC only being reported for Ca in this folder - all samples required dilution.
ICB1-140801	1	ICPMS_TW	ICB	R74657	8/1/2014 3:10:00 PM		
MB-64972	1	ICPMS_DW	MBLK	64972	8/1/2014 3:16:00 PM		
LCS-64972	1	ICPMS_DW	LCS	64972	8/1/2014 3:28:00 PM		
LCSD-64972	1	ICPMS_DW	LCSD	64972	8/1/2014 3:34:00 PM		
1407346-02B	1	ICPMS_DW	SAMP	64972	8/1/2014 3:46:00 PM		FOR QC REFERENCE ONLY - DNR.
1407346-02B SD	5	ICPMS_DW	SD	64972	8/1/2014 3:52:00 PM		
1407297-01B	1	ICPMS_DW	SAMP	64972	8/1/2014 3:58:00 PM		
1407331-01B	1	ICPMS_DW	SAMP	64972	8/1/2014 4:28:00 PM		
1407331-02B	1	ICPMS_DW	SAMP	64972	8/1/2014 4:34:00 PM		
1407331-03B	1	ICPMS_DW	SAMP	64972	8/1/2014 4:40:00 PM		
1407331-04B	1	ICPMS_DW	SAMP	64972	8/1/2014 4:46:00 PM		
1407346-02B PDS	1	ICPMS_DW	PDS	64972	8/1/2014 4:52:00 PM		
1407346-02B MS	1	ICPMS_DW	MS	64972	8/1/2014 4:58:00 PM		
1407346-02B MSD	1	ICPMS_DW	MSD	64972	8/1/2014 5:04:00 PM		
CCV1-140801	1	ICPMS_TW	CCV	R74657	8/1/2014 5:23:00 PM		
LCVL1-140801	1	6020A_W	LCVL	R74657	8/1/2014 5:41:00 PM		Ca low. QC only being reported for Ca in this folder - all samples required dilution.
CCB1-140801	1	ICPMS_TW	CCB	R74657	8/1/2014 5:47:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140729	ICPMS CCV 200/5000 PPB		10/27/2014
MET-H2CAL-1407	ICPMS High Cal2 2000ppb std 8		10/15/2014
MET-HCAL-14071	ICPMS High Cal 500ppb/10ppm s		10/15/2014
MET-ICV-140729	ICPMS ICV 100 ppb		10/27/2014
MET-IS-140718	INTERNAL STANDARD 1 PPM		10/16/2014
MET-L2CAL-14071	ICPMS Low Cal2 1/20ppb std 2		10/15/2014
MET-LCAL-140717	ICPMS Low Cal 10/200ppb std 3		10/15/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		10/15/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		10/15/2014
MET-MCAL-14071	ICPMS Mid Cal 250/5000ppb std		10/15/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140715	250 PPM Naturals+Al+Fe PDS		10/13/2014
MET-PDS-140717-	10 PPM CUSTOM PDS SOLUTI		10/15/2014
MET-PDS-140717-	10 PPM Ag+Sb PDS		10/15/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		10/16/2014

DHL Analytical, Inc.

Run ID: ICP-MS3_140801B **Run No.:** 74657

MB-64981	1	ICPMS_TW	MBLK	64981	8/1/2014 5:53:00 PM		
LCS-64981	1	ICPMS_TW	LCS	64981	8/1/2014 6:06:00 PM		
LCSD-64981	1	ICPMS_TW	LCSD	64981	8/1/2014 6:12:00 PM		
1407292-07C	1	ICPMS_TW	SAMP	64981	8/1/2014 6:24:00 PM		
1407292-07C SD	5	ICPMS_TW	SD	64981	8/1/2014 6:30:00 PM		
1407292-08C	1	ICPMS_TW	SAMP	64981	8/1/2014 6:36:00 PM		
1407292-09C	1	ICPMS_TW	SAMP	64981	8/1/2014 6:42:00 PM		
1407292-10C	1	ICPMS_TW	SAMP	64981	8/1/2014 6:48:00 PM		
1407314-06B	1	ICPMS_TW	SAMP	64981	8/1/2014 7:00:00 PM		
1407315-12A	1	ICPMS_TW	SAMP	64981	8/1/2014 7:06:00 PM		
1407292-07C PDS	1	ICPMS_TW	PDS	64981	8/1/2014 7:17:00 PM		
1407292-07C MS	1	ICPMS_TW	MS	64981	8/1/2014 7:23:00 PM		Na low.
1407292-07C MSD	1	ICPMS_TW	MSD	64981	8/1/2014 7:29:00 PM		Na and Ca low. RPD ok.
CCV2-140801	1	ICPMS_TW	CCV	R74657	8/1/2014 7:35:00 PM		
LCVL2-140801	1	6020A_W	LCVL	R74657	8/1/2014 8:00:00 PM		Ca and Na low. QC only being reported for Ca in this folder - all samples required dilution. Na samples also require dilution. Na high
CCB2-140801	1	ICPMS_TW	CCB	R74657	8/1/2014 8:18:00 PM		
MB-64976	1	ICPMS_TW	MBLK	64976	8/1/2014 8:24:00 PM		
LCS-64976	1	ICPMS_TW	LCS	64976	8/1/2014 8:30:00 PM		
LCSD-64976	1	ICPMS_TW	LCSD	64976	8/1/2014 8:36:00 PM		
1407278-03A	1	ICPMS_TW	SAMP	64976	8/1/2014 8:48:00 PM		
1407278-03A SD	5	ICPMS_TW	SD	64976	8/1/2014 8:54:00 PM		Pb RPD fail - PDS ok.
1407278-03A PDS	1	ICPMS_TW	PDS	64976	8/1/2014 9:55:00 PM		
1407278-03A MS	1	ICPMS_TW	MS	64976	8/1/2014 10:01:00 PM		Ca low. no recovery
1407278-03A MSD	1	ICPMS_TW	MSD	64976	8/1/2014 10:07:00 PM		Ca low. RPD ok. no recovery
CCV3-140801	1	ICPMS_TW	CCV	R74657	8/1/2014 10:13:00 PM		
LCVL3-140801	1	6020A_W	LCVL	R74657	8/1/2014 10:37:00 PM		Ca low. K high. QC only being reported for Ca in this folder - all samples required dilution. CCV passes for K - samples have significant hits.
CCB3-140801	1	ICPMS_TW	CCB	R74657	8/1/2014 10:55:00 PM		
1407292-01C	1	ICPMS_TW	SAMP	64976	8/1/2014 11:02:00 PM		
1407292-02C	1	ICPMS_TW	SAMP	64976	8/1/2014 11:08:00 PM		
1407292-03C	1	ICPMS_TW	SAMP	64976	8/1/2014 11:14:00 PM		
1407292-04C	1	ICPMS_TW	SAMP	64976	8/1/2014 11:20:00 PM		
1407292-05C	1	ICPMS_TW	SAMP	64976	8/1/2014 11:26:00 PM		
1407292-06C	1	ICPMS_TW	SAMP	64976	8/1/2014 11:32:00 PM		

1407278-03A MS/MSD: No recovery for Ca due to high content in the parent sample.

Std ID	Std Name	Type	Exp. Date
MET-CCV-140729	ICPMS CCV 200/5000 PPB		10/27/2014
MET-H2CAL-1407	ICPMS High Cal2 2000ppb std 8		10/15/2014
MET-HCAL-14071	ICPMS High Cal 500ppb/10ppm s		10/15/2014
MET-ICV-140729	ICPMS ICV 100 ppb		10/27/2014
MET-IS-140718	INTERNAL STANDARD 1 PPM		10/16/2014
MET-L2CAL-14071	ICPMS Low Cal2 1/20ppb std 2		10/15/2014
MET-LCAL-140717	ICPMS Low Cal 10/200ppb std 3		10/15/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		10/15/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		10/15/2014
MET-MCAL-14071	ICPMS Mid Cal 250/5000ppb std		10/15/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140715	250 PPM Naturals+Al+Fe PDS		10/13/2014
MET-PDS-140717-	10 PPM CUSTOM PDS SOLUTI		10/15/2014
MET-PDS-140717-	10 PPM Ag+Sb PDS		10/15/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		10/16/2014

Run ID: ICP-MS3_140801B **Run No.:** 74657

CCV4-140801	1	ICPMS_TW	CCV	R74657	8/1/2014 11:56:00 PM		
LCVL4-140801	1	6020A_W	LCVL	R74657	8/2/2014 12:26:00 AM		Ca low. K and Na high. QC only being reported for Ca in this folder - all samples required dilution. Na samples also require dilution. CCV passes for K. Samples have significant hits.
CCB4-140801	1	ICPMS_TW	CCB	R74657	8/2/2014 12:39:00 AM		
1407331-05B	1	ICPMS_DW	SAMP	64972	8/2/2014 12:45:00 AM		
1407331-06B	1	ICPMS_DW	SAMP	64972	8/2/2014 12:51:00 AM		
1407331-07B	1	ICPMS_DW	SAMP	64972	8/2/2014 12:57:00 AM		
1407331-08B	1	ICPMS_DW	SAMP	64972	8/2/2014 1:03:00 AM		
1407331-09B	1	ICPMS_DW	SAMP	64972	8/2/2014 1:09:00 AM		
1407331-10B	1	ICPMS_DW	SAMP	64972	8/2/2014 1:15:00 AM		DNR - see 10x for both target analytes.
1407331-11B	1	ICPMS_DW	SAMP	64972	8/2/2014 1:21:00 AM		
CCV5-140801	1	ICPMS_TW	CCV	R74657	8/2/2014 1:33:00 AM		
LCVL5-140801	1	6020A_W	LCVL	R74657	8/2/2014 1:57:00 AM		
CCB5-140801	1	ICPMS_TW	CCB	R74657	8/2/2014 2:09:00 AM		
ICSA-140801	1	ICPMS_TW	ICSA	R74657	8/2/2014 2:15:00 AM		
ICSAB-140801	1	ICPMS_TW	ICSB	R74657	8/2/2014 2:21:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140729	ICPMS CCV 200/5000 PPB		10/27/2014
MET-H2CAL-1407	ICPMS High Cal2 2000ppb std 8		10/15/2014
MET-HCAL-14071	ICPMS High Cal 500ppb/10ppm s		10/15/2014
MET-ICV-140729	ICPMS ICV 100 ppb		10/27/2014
MET-IS-140718	INTERNAL STANDARD 1 PPM		10/16/2014
MET-L2CAL-14071	ICPMS Low Cal2 1/20ppb std 2		10/15/2014
MET-LCAL-140717	ICPMS Low Cal 10/200ppb std 3		10/15/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		10/15/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		10/15/2014
MET-MCAL-14071	ICPMS Mid Cal 250/5000ppb std		10/15/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140715	250 PPM Naturals+Al+Fe PDS		10/13/2014
MET-PDS-140717-	10 PPM CUSTOM PDS SOLUTI		10/15/2014
MET-PDS-140717-	10 PPM Ag+Sb PDS		10/15/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		10/16/2014

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		CALBEG	Start of CALIB						
2	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
3	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
4	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
5	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
6	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		1/20 ppb STD.	CAL ICPMS_TW	Level 2				
7	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		10/200 ppb STD.	CAL ICPMS_TW	Level 3				
8	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		50/1000 ppb STD.	CAL ICPMS_TW	Level 4				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		100/2000 ppb STD.	CAL ICPMS_TW	Level 5				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		250/5000 ppb STD.	CAL ICPMS_TW	Level 6				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		500/10000 ppb STD.	CAL ICPMS_TW	Level 7				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		2000/25000 ppb STD.	CAL ICPMS_TW	Level 8				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
15		Keyword		CALEND	End of CALIB						
16		Keyword		ICSBEG	Start of ICS						
17	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-140801	ICSAICPMS_TW	1.000				
18	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-140801	ICSBICPMS_TW	1.000				
19	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CAL ICPMS_TW	1.000				
20	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		RINSE	CAL ICPMS_TW	1.000				
21		Keyword		ICSEND	End of ICS						
22		Keyword		SMPLBEG	Start of SMPL						
23	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-140801	ICV ICPMS_TW	1.000				
24	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	2101		ICB1-140801	ICB ICPMS_TW	1.000				
25	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-140801	ICV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
26	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		ILCVL-140801	LCVL6020A_W	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-140801	ICV ICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		ILCVL-140801	LCVL6020A_W	1.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1105		ICB1-140801	ICB ICPMS_TW	1.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2201		MB-64972	MBLK6020A_DW	1.000				
31	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2202		MB-64911 SPLP	MBLKSPLP_MET	1.000				
32	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2203		LCS-64972	LCS 6020A_DW	1.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2204		LCSD-64972	LCSD6020A_DW	1.000				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2205		1407346-02B	SAMP6020A_DW	1.000				
36	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2206		1407346-02B SD	SD 6020A_DW	1.000				
37	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2207		1407297-01B	SAMPICPMS_DW	1.000				
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2208		1407154-03B	SAMPSPLP_MET	1.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2209		1407346-01B	SAMP6020A_DW	1.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2210		1407346-03B	SAMP6020A_DW	1.000				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2211		1407346-04B	SAMP6020A_DW	1.000				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2212		1407331-01B	SAMPICPMS_DW	1.000				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2301		1407331-02B	SAMPICPMS_DW	1.000				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2302		1407331-03B	SAMPICPMS_DW	1.000				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2303		1407331-04B	SAMPICPMS_DW	1.000				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2304		1407346-02B PDS	PDS 6020A_DW	1.000				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2305		1407346-02B MS	MS 6020A_DW	1.000				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2306		1407346-02B MSD	MSD 6020A_DW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
49	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-140801	CCV ICPMS_TW	1.000				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1306		CCV1-140801	CCV ICPMS_TW	1.000				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-140801	CCV ICPMS_TW	1.000				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB1-140801	CCB ICPMS_TW	1.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB1-140801	CCB ICPMS_TW	1.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL1-140801	LCVL6020A_W	1.000				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-140801	CCB ICPMS_TW	1.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2401		MB-64981	MBLK6020A_W	1.000				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2402		MB-64932-TCLP	MBLKTCLP_MET	1.000				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2403		LCS-64981	LCS 6020A_W	1.000				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	2404		LCSD-64981	LCSD6020A_W	1.000				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2405		1407292-07C	SAMP6020A_W	1.000				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2406		1407292-07C SD	SD_6020A_W	5.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2407		1407292-08C	SAMPICPMS_TW	1.000				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2408		1407292-09C	SAMPICPMS_TW	1.000				
65	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2409		1407292-10C	SAMPICPMS_TW	1.000				
66	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2410		1407355-17A	SAMP6020A_W	1.000				
67	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2411		1407314-06B	SAMPICPMS_TW	1.000				
68	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2412		1407315-12A	SAMPICPMS_TW	1.000				
69	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2501		1407299-01A	SAMPTCLP_MET	1.000				
70	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2502		1407292-07C PDS	PDS 6020A_W	1.000				
71	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2503		1407292-07C MS	MS_6020A_W	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
72	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2504		1407292-07C MSD	MSD 6020A_W	1.000				
73	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-140801	CCV ICPMS_TW	1.000				
74	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-140801	CCV ICPMS_TW	1.000				
75	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB2-140801	CCB ICPMS_TW	1.000				
76	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-140801	CCB ICPMS_TW	1.000				
77	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL2-140801	LCVL6020A_W	1.000				
78	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL2-140801	LCVL6020A_W	1.000				
79	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-140801	CCB ICPMS_TW	1.000				
80	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-140801	CCB ICPMS_TW	1.000				
81	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	3101		MB-64976	MBLK6020A_W	1.000				
82	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	3102		LCS-64976	LCS 6020A_W	1.000				
83	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	3103		LCSD-64976	LCSD6020A_W	1.000				
84	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
85	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3104		1407278-03A	SAMP6020A_W	1.000				
86	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3105		1407278-03A SD	SD 6020A_W	5.000				
87	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3106		1407278-01A	SAMP6020A_W	1.000				
88	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3107		1407278-02A	SAMP6020A_W	1.000				
89	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3108		1407278-04A	SAMP6020A_W	1.000				
90	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3109		1407278-05A	SAMP6020A_W	1.000				
91	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3110		1407278-06A	SAMP6020A_W	1.000				
92	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3111		1407278-07A	SAMP6020A_W	1.000				
93	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3112		1407278-08A	SAMP6020A_W	1.000				
94	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3201		1407278-09A	SAMP6020A_W	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
95	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3202		1407278-10A	SAMP6020A_W	1.000				
96	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3203		1407278-03A PDS	PDS 6020A_W	1.000				
97	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	3204		1407278-03A MS	MS_6020A_W	1.000				
98	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	3205		1407278-03A MSD	MSD 6020A_W	1.000				
99	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-140801	CCV ICPMS_TW	1.000				
100	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-140801	CCV ICPMS_TW	1.000				
101	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB3-140801	CCB ICPMS_TW	1.000				
102	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-140801	CCB ICPMS_TW	1.000				
103	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL3-140801	LCVL6020A_W	1.000				
104	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL3-140801	LCVL6020A_W	1.000				
105	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB3-140801	CCB ICPMS_TW	1.000				
106	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-140801	CCB ICPMS_TW	1.000				
107	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3301		1407292-01C	SAMPICPMS_TW	1.000				
108	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3302		1407292-02C	SAMPICPMS_TW	1.000				
109	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3303		1407292-03C	SAMPICPMS_TW	1.000				
110	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3304		1407292-04C	SAMPICPMS_TW	1.000				
111	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3305		1407292-05C	SAMPICPMS_TW	1.000				
112	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3306		1407292-06C	SAMPICPMS_TW	1.000				
113	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3307		1407278-11A	SAMP6020A_W	1.000				
114	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3308		1407278-12A	SAMP6020A_W	1.000				
115	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3309		1407278-13A	SAMP6020A_W	1.000				
116	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-140801	CCV ICPMS_TW	1.000				
117	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-140801	CCV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
118	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB4-140801	CCB ICPMS_TW	1.000				
119	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB4-140801	CCB ICPMS_TW	1.000				
120	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL4-140801	LCVL6020A_W	1.000				
121	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL4-140801	LCVL6020A_W	1.000				
122	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB4-140801	CCB ICPMS_TW	1.000				
123	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB4-140801	CCB ICPMS_TW	1.000				
124	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3401		1407331-05B	SAMPICPMS_DW	1.000				
125	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3402		1407331-06B	SAMPICPMS_DW	1.000				
126	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3403		1407331-07B	SAMPICPMS_DW	1.000				
127	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3404		1407331-08B	SAMPICPMS_DW	1.000				
128	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3405		1407331-09B	SAMPICPMS_DW	1.000				
129	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3406		1407331-10B	SAMPICPMS_DW	1.000				
130	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3407		1407331-11B	SAMPICPMS_DW	1.000				
131	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV5-140801	CCV ICPMS_TW	1.000				
132	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV5-140801	CCV ICPMS_TW	1.000				
133	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		CCB5-140801	CCB ICPMS_TW	1.000				
134	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-140801	CCB ICPMS_TW	1.000				
135	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL5-140801	LCVL6020A_W	1.000				
136	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL5-140801	LCVL6020A_W	1.000				
137	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB5-140801	CCB ICPMS_TW	1.000				
138	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-140801	CCB ICPMS_TW	1.000				
139		Keyword		StandBy							
140		Keyword		SMPLEND	End of SMPL						
141		Keyword		End	End of Sequence						

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
142		Keyword		CCVBEG	Start of CCV						
143		Keyword		CCVEND	End of CCV						
144		Keyword		BLKBEG	Start of BLANK						
145		Keyword		BLKEND	End of BLANK						
146		Keyword		ERRBEG	Start of ERRTERM						
147		Keyword		ERREND	End of ERRTERM						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/1/2014 8:00:00 AM**
Digestion: **Start: 8/1/2014 8:30:00 AM / Stop: 8/1/2014 1:26:00 PM**
Prep End Date: **8/1/2014 1:27:08 PM**

Prep Batch **64976** Prep Code: **3005A** Technician: **Matthew Kuhaneck**

Prep Factor Units: **mL/mL**

Equipment List
Thermometer #71
Hot Block #4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1407278-01A	Aqueous		50	50	1.000	1 of 1
1407278-02A	Aqueous		50	50	1.000	1 of 1
1407278-03A	Aqueous		50	50	1.000	1 of 3
1407278-03A MS	Aqueous		50	50	1.000	of
1407278-03A MSD	Aqueous		50	50	1.000	of
1407278-03A PDS	Aqueous		50	50	1.000	of
1407278-03A SD	Aqueous		50	50	1.000	of
1407278-04A	Aqueous		50	50	1.000	1 of 1
1407278-05A	Aqueous		50	50	1.000	1 of 1
1407278-06A	Aqueous		50	50	1.000	1 of 1
1407278-07A	Aqueous		50	50	1.000	1 of 1
1407278-08A	Aqueous		50	50	1.000	1 of 1
1407278-09A	Aqueous		50	50	1.000	1 of 1
1407278-10A	Aqueous		50	50	1.000	1 of 1
1407278-11A	Aqueous		50	50	1.000	1 of 1
1407278-12A	Aqueous		50	50	1.000	1 of 1
1407278-13A	Aqueous		50	50	1.000	1 of 1
1407292-01C	Aqueous		50	50	1.000	1 of 1
1407292-02C	Aqueous		50	50	1.000	1 of 1
1407292-03C	Aqueous		50	50	1.000	1 of 1
1407292-04C	Aqueous		50	50	1.000	1 of 1
1407292-05C	Aqueous		50	50	1.000	1 of 1
1407292-06C	Aqueous		50	50	1.000	1 of 1
LCS-64976	Aqueous		50	50	1.000	of
LCSD-64976	Aqueous		50	50	1.000	of
MB-64976	Aqueous		50	50	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
8095	Hydrochloric Acid (Trace Metal Grade)	1	ml	07/05/2016
8144	Digestion Vessels	69	ml	11/10/2014
8198	Nitric Acid (Trace Metal Grade)	1	ml	12/24/2015

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-140109-01	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/06/2015
MET-140109-02	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/10/2015
MET-SPIKE-140716-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	08/16/2014
MET-SPIKE-140724-1	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MS	0.2	08/24/2014
MET-SPIKE-140724-2	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	08/24/2014

REVIEWED
By Evelyn Ferrero at 2:46:55 PM, 8/4/2014

Calibration Summary Report

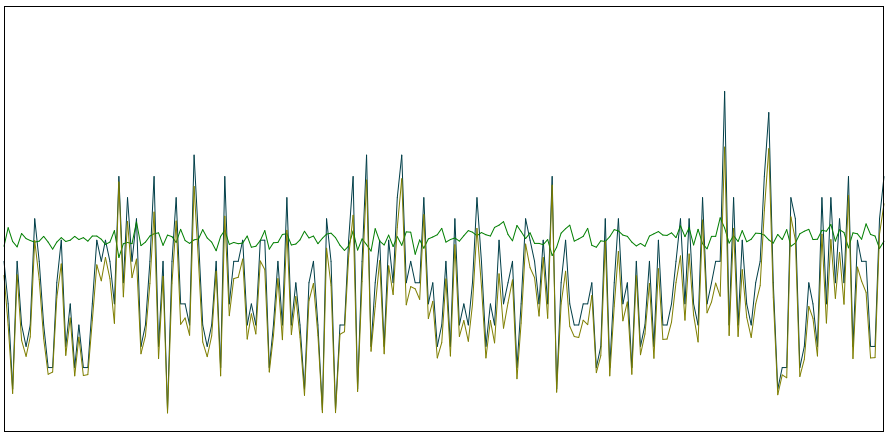
Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3Fe.C
Last Update: Aug 01 2014 02:34 pm
Cal Type: Y=aX+[blank]

Standard	Date Acquired	File
BLANK STD 1	Aug 1 2014 01:09 pm	c:\icpchem\1\data\14h01m04.b\004calb.d\
1/20 ppb STD.	Aug 1 2014 01:15 pm	c:\icpchem\1\data\14h01m04.b\005cals.d\
10/200 ppb STD.	Aug 1 2014 01:21 pm	c:\icpchem\1\data\14h01m04.b\006cals.d\
50/1000 ppb STD.	Aug 1 2014 01:27 pm	c:\icpchem\1\data\14h01m04.b\007cals.d\
100/2000 ppb STD.	Aug 1 2014 01:33 pm	c:\icpchem\1\data\14h01m04.b\008cals.d\
250/5000 ppb STD.	Aug 1 2014 01:39 pm	c:\icpchem\1\data\14h01m04.b\009cals.d\

Element Name	Corr Coef	Coef A	Coef B	Lvl 2	Lvl 6	Lvl 7	L7 %R	Lvl 8	L8 %R
Li	0.0764	-3.36E-006	0.05832	1843.00	1,603	2133		1264	
Be	0.9992	0.07538	0.001279	1.00	266	491	98%	--------	######
B	0.9996	0.04374	0.1038	0.97	278	548	110%	1,984	99%
Na	0.9998	0.1954	25.58	19.25	5,274	10,400	104%	24,780	99%
Mg	1.0000	0.09129	0.2904	19.74	5,084	10,010	100%	24,970	100%
Al	1.0000	0.02954	0.2823	20.89	5,078	9,953	100%	--------	######
K	1.0000	0.06019	9.565	9.70	5,072	10,070	101%	24,950	100%
Ca	0.9997	0.006766	1.183	5.99	5,385	10,400	104%	24,760	99%
Ti	0.9998	0.0251	0.002951	0.97	268	538	108%	1,988	99%
V	1.0000	0.9992	0.2246	0.99	260	513	103%	1,995	100%
Cr	0.9999	1.244	0.9328	1.06	263	521	104%	1,993	100%
Mn	0.9998	0.548	0.07671	0.99	269	530	106%	1,990	100%
Fe	0.9998	1.599	7.09	20.44	5,134	9,914	99%	--------	######
Co	0.9998	3.318	0.1375	1.12	268	533	107%	1,989	99%
Ni	0.9998	0.9301	0.5924	1.07	269	535	107%	1,989	99%
Cu	0.9998	2.56	1.524	0.95	269	531	106%	1,989	99%
Zn	0.9998	0.3131	0.6006	0.37	269	533	107%	1,989	99%
As	0.9999	0.1958	0.04776	1.03	263	523	105%	1,992	100%
Se	0.9999	0.01049	0.00691	1.10	265	525	105%	1,991	100%
Sr	0.9997	0.2773	0.02608	1.08	276	537	107%	1,987	99%
Mo	1.0000	0.0554	0.002955	0.98	250	500	100%	--------	######
Ag	1.0000	0.1348	0.001783	0.99	248	501	100%	--------	######
Cd	0.9999	0.02734	0.0006753	1.02	263	520	104%	1,993	100%
Sn	0.9995	0.07831	0.06599	0.79	271	556	111%	1,983	99%
Sb	0.9999	0.1153	0.00258	0.97	245	503	101%	--------	######
Ba	0.9999	0.03998	0.003604	1.02	261	517	103%	1,994	100%
Tl	0.9998	0.2786	0.006488	1.03	275	531	106%	1,989	99%
Pb	0.9997	0.3811	0.01404	1.04	272	542	108%	1,986	99%

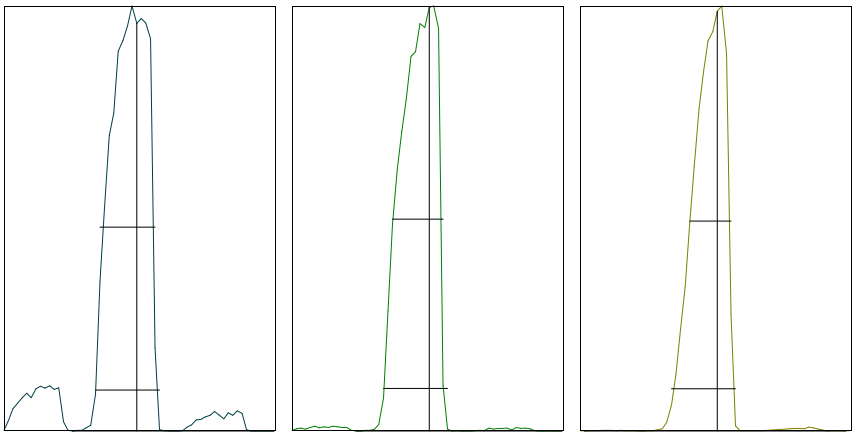
Tune Report

Tune File : He.U
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.2000 sec	
n:	200	
Oxide:	156/140	0.469%
Doubly Charged:	70/140	1.614%

m/z	Range	Count	Mean	RSD%	Background
51	20	12.0	6.9	41.08	0.50
59	5,000	2239.0	2274.6	3.50	0.70
51/59	1	0.536%	0.303%	41.32	



m/z:	59	89	205
Height:	2,304	1,442	5,584
Axis:	59.00	89.05	205.05
W-50%:	0.60	0.55	0.45
W-10%:	0.700	0.700	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.5600 sec

Y axis : Linear

Generated : Aug 01, 2014 11:59:35
Printed : Aug 01, 2014 11:59:37

Tune Report

Tune File : He.U
Comment :

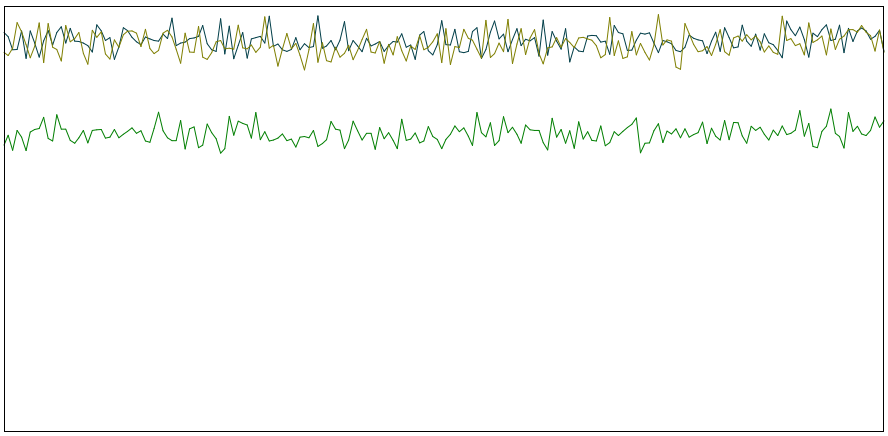
Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1550	W	Extract 1	:	0	V	AMU Gain	:	121	
RF Matching	:	1.7	V	Extract 2	:	-130	V	AMU Offset	:	123	
Smpl Depth	:	10	mm	Omega Bias-ce	:	-16	V	Axis Gain	:	0.9993	
Torch-H	:	-0.2	mm	Omega Lens-ce	:	0.8	V	Axis Offset	:	-0.06	
Torch-V	:	0.9	mm	Cell Entrance	:	-40	V	QP Bias	:	-16.8	V
Carrier Gas	:	1.15	L/min	QP Focus	:	-9	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1710	V
Sample Pump	:	---	rps	OctP RF	:	200	V	Pulse HV	:	1220	V
S/C Temp	:	2	degC	OctP Bias	:	-16.8	V				

===Reaction Cell===											
Reaction Mode	:	ON									
H2 Gas	:	0	mL/min	He Gas	:	4.5	mL/min	Optional Gas	:	---	%

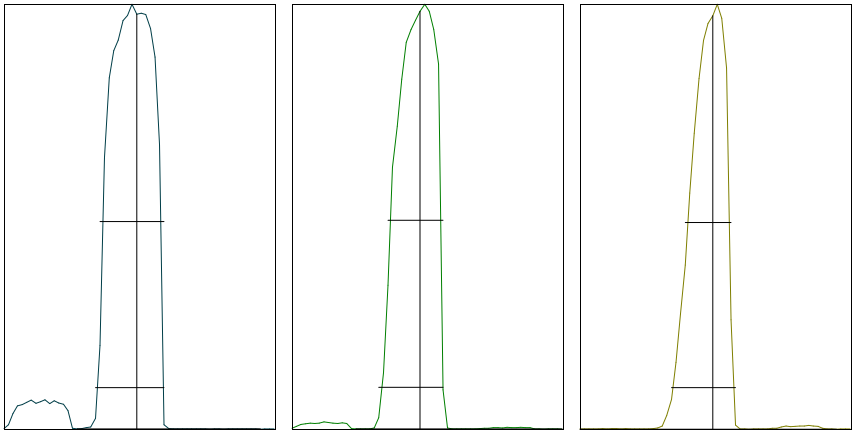
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.8200 sec	
n:	200	
Oxide:	156/140	1.016%
Doubly Charged:	70/140	1.928%

m/z	Range	Count	Mean	RSD%	Background
7	10,000	8945.0	9195.8	2.48	14.80
89	20,000	14610.0	14007.1	3.04	12.30
205	10,000	8921.0	9107.9	3.02	19.20
156/140	2	0.890%	0.984%	9.26	
70/140	5	1.975%	1.953%	7.84	
23	100,000	57061.0	57582.4	1.13	11.90
80	500,000	388188.0	387216.2	0.37	12.50



m/z:	7	89	205
Height:	9,060	14,147	9,117
Axis:	7.00	88.95	205.00
W-50%:	0.70	0.60	0.50
W-10%:	0.7500	0.700	0.700

Integration Time: 0.1000 sec
Acquisition Time: 22.7600 sec

Y axis : Linear

Generated : Aug 01, 2014 11:56:35
Printed : Aug 01, 2014 11:56:37

Tune Report

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1550	W	Extract 1	:	0	V	AMU Gain	:	121	
RF Matching	:	1.7	V	Extract 2	:	-130	V	AMU Offset	:	123	
Smpl Depth	:	10	mm	Omega Bias-ce	:	-16	V	Axis Gain	:	0.9993	
Torch-H	:	-0.2	mm	Omega Lens-ce	:	0.8	V	Axis Offset	:	-0.06	
Torch-V	:	0.9	mm	Cell Entrance	:	-40	V	QP Bias	:	-3.5	V
Carrier Gas	:	1.15	L/min	QP Focus	:	2	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1710	V
Sample Pump	:	---	rps	OctP RF	:	200	V	Pulse HV	:	1220	V
S/C Temp	:	2	degC	OctP Bias	:	-7	V				

===Reaction Cell===

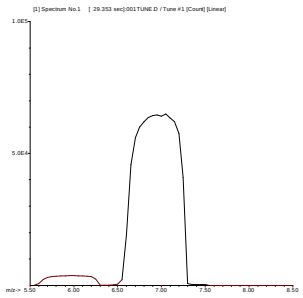
Reaction Mode	:	OFF									
H2 Gas	:	0	mL/min	He Gas	:	0	mL/min	Optional Gas	:	---	%

6020 QC Tune Report

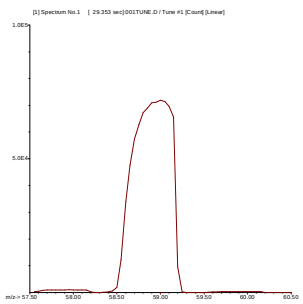
Data File: C:\ICPCHEM\1\DATA\14H01m03.B\001TUNE.D
Date Acquired: Aug 1 2014 12:32 pm
Acq. Method: TN6020.M
Operator: SW
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

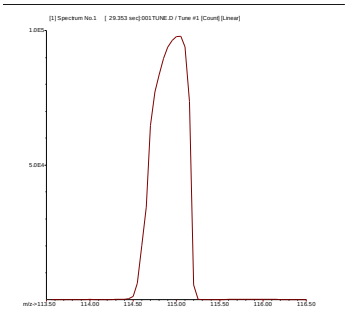
Element	Actual	Required	Flag
7 Li	1.02	5.00	
59 Co	0.85	5.00	
115 In	4.25	5.00	
205 Tl	1.26	5.00	



7 Li
Mass Calib.
Actual: 6.95
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: 0.55
Required: 0.90
Flag:



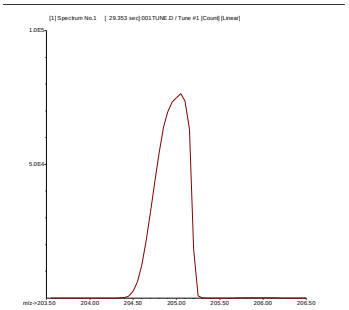
115 In

Mass Calib.

Actual:	115.00	
Required:	114.90 -	115.10
Flag:		

Peak Width

Actual:	0.55
Required:	0.90
Flag:	



205 Tl

Mass Calib.

Actual:	205.00	
Required:	204.90 -	205.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	

P/A Factor Tuning Report

Acquired:Aug 1 2014 00:04 pm

Mass[amu]	Element	P/A Factor
6	Li	0.070487
23	Na	0.085607
24	Mg	0.089440
27	Al	0.092148
39	K	0.092529
44	Ca	Sensitivity too low
45	Sc	0.093253
47	Ti	Sensitivity too low
51	V	0.095459
52	Cr	0.097696
55	Mn	0.099206
59	Co	0.102109
60	Ni	0.103759
63	Cu	0.105323
66	Zn	0.105208
72	Ge	0.104410
75	As	0.103463
78	Se	Sensitivity too low
88	Sr	0.104405
95	Mo	0.103440
106	(Cd)	0.108670
107	Ag	Sensitivity too low
108	(Cd)	0.108930
111	Cd	0.109977
115	In	0.109699
118	Sn	0.109457
121	Sb	0.109342
137	Ba	Sensitivity too low
205	Tl	0.116947
206	(Pb)	0.116814
207	(Pb)	0.117039
208	Pb	0.117170
209	Bi	0.116993
238		0.117030

===Detector Parameters===
Discriminator: 8.0 mV
Analog HV: 1710 V
Pulse HV: 1220 V

Calibration Blank QC Report

Acq. Method: DHL_3Fe.M Sample Name: BLANK STD 1
Operator: SW Instrument: ICPMS3
Last Cal. Update: Aug 01 2014 01:12 pm
Date Acquired: Aug 1 2014 01:09 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	4259.44	P	44.18	1.04
7	Li	2	45	1467.93	P	91.44	6.23
9	Be	2	45	32.22	P	10.71	33.24
11	B	2	45	2612.61	P	158.70	6.07
23	Na	1	45	19471.27	P	201.50	1.03
24	Mg	1	45	221.12	P	15.03	6.80
27	Al	1	45	215.12	P	18.49	8.60
39	K	1	45	7283.53	P	252.40	3.47
44	Ca	2	45	29776.49	P	463.00	1.55
45	Sc	1	---	152280.59	P	2747.00	1.80
45	Sc	2	---	5033455.00	A	29070.00	0.58
47	Ti	1	45	2.22	P	2.04	91.66
51	V	1	45	171.12	P	11.34	6.63
51	V	2	---		P		
52	Cr	1	45	710.25	P	15.16	2.13
55	Mn	1	45	58.22	P	18.15	31.17
56	Fe	1	72	3302.27	P	216.90	6.57
59	Co	1	72	64.00	P	8.33	13.01
60	Ni	1	72	276.01	P	21.46	7.78
60	Ni	2	---		P		
63	Cu	1	72	709.81	P	53.43	7.53
63	Cu	2	---		P		
66	Zn	1	72	279.56	P	36.82	13.17
66	Zn	2	---		P		
72	Ge	1	---	93230.46	P	1440.00	1.54
72	Ge	2	---		P		
75	As	1	72	22.26	P	1.22	5.48
78	Se	1	72	3.22	P	0.38	11.95
88	Sr	2	###	763.39	P	25.17	3.30
95	Mo	2	###	86.67	P	15.28	17.63
107	Ag	2	###	52.22	P	5.09	9.75
111	Cd	2	###	19.86	P	9.16	46.10
115	In	2	---	5857332.00	A	93570.00	1.60
118	Sn	2	###	1933.57	P	118.50	6.13
121	Sb	2	###	75.56	P	11.71	15.50
137	Ba	2	###	105.56	P	18.36	17.39
205	Tl	2	###	164.45	P	21.69	13.19
208	Pb	2	###	355.57	P	47.30	13.30
209	Bi	2	---	5068454.00	A	50240.00	0.99

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 1/20 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 1 2014 01:15 pm
Last Cal. Update: Aug 01 2014 01:13 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4450.58	P	86.75	1.95	
7	Li	2	45	1360.13	P	130.20	9.57	Fail
9	Be	2	45	2001.35	P	41.43	2.07	
11	B	2	45	3817.39	P	168.70	4.42	
23	Na	1	45	22995.12	P	292.60	1.27	
24	Mg	1	45	1641.28	P	93.25	5.68	
27	Al	1	45	704.92	P	30.12	4.27	
39	K	1	45	7956.21	P	178.00	2.24	
44	Ca	2	45	31930.83	P	851.60	2.67	
45	Sc	1	---	156778.91	P	2330.00	1.49	
45	Sc	2	---	5218695.00	A	12790.00	0.25	
47	Ti	1	45	21.33	P	2.31	10.82	
51	V	1	45	951.61	P	41.32	4.34	
51	V	2	---		P			
52	Cr	1	45	1761.49	P	92.89	5.27	
55	Mn	1	45	486.24	P	24.20	4.98	
56	Fe	1	72	19059.79	P	286.20	1.50	
59	Co	1	72	1839.28	P	46.01	2.50	
60	Ni	1	72	758.70	P	81.86	10.79	
60	Ni	2	---		P			
63	Cu	1	72	1901.07	P	18.11	0.95	
63	Cu	2	---		P			
66	Zn	1	72	342.68	P	15.14	4.42	
66	Zn	2	---		P			
72	Ge	1	---	95868.18	P	1063.00	1.11	
72	Ge	2	---		P			
75	As	1	72	119.26	P	5.89	4.94	
78	Se	1	72	8.85	P	0.06	0.72	
88	Sr	2	115	9759.88	P	330.00	3.38	
95	Mo	2	115	1717.97	P	40.06	2.33	
107	Ag	2	115	4050.85	P	295.00	7.28	
111	Cd	2	115	856.59	P	37.88	4.42	
115	In	2	---	5976509.00	A	59850.00	1.00	
118	Sn	2	115	3815.21	P	225.80	5.92	
121	Sb	2	115	3428.42	P	64.07	1.87	
137	Ba	2	115	1325.68	P	63.11	4.76	
205	Tl	2	209	7599.54	P	341.40	4.49	
208	Pb	2	209	10649.13	P	190.70	1.79	
209	Bi	2	---	5178263.00	A	55700.00	1.08	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4450.58	1.95	4259.45	104.5	70 - 120	
45	Sc	1	156778.95	1.49	152280.61	103.0	70 - 120	
45	Sc	2	5218694.50	0.25	5033455.00	103.7	70 - 120	
72	Ge	1	95868.18	1.11	93230.46	102.8	70 - 120	
115	In	2	5976509.50	1.00	5857332.00	102.0	70 - 120	
209	Bi	2	5178263.00	1.08	5068454.00	102.2	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 10/200 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 1 2014 01:21 pm
Last Cal. Update: Aug 01 2014 01:19 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4215.96	P	92.42	2.19	
7	Li	2	45	1361.24	P	74.27	5.46	Fail
9	Be	2	45	20208.92	P	476.50	2.36	Fail
11	B	2	45	14827.01	P	140.20	0.95	Fail
23	Na	1	45	51792.34	P	495.40	0.96	Fail
24	Mg	1	45	15121.86	P	371.00	2.45	Fail
27	Al	1	45	4873.47	P	184.90	3.79	Fail
39	K	1	45	16643.93	P	525.70	3.16	Fail
44	Ca	2	45	64424.24	P	888.00	1.38	Fail
45	Sc	1	---	156004.80	P	2843.00	1.82	
45	Sc	2	---	5170003.00	A	57970.00	1.12	
47	Ti	1	45	217.78	P	4.68	2.15	Fail
51	V	1	45	8330.92	P	266.30	3.20	Fail
51	V	2	---		P			
52	Cr	1	45	11295.52	P	466.90	4.13	Fail
55	Mn	1	45	4777.44	P	50.83	1.06	Fail
56	Fe	1	72	160949.00	P	5150.00	3.20	Fail
59	Co	1	72	17433.88	P	260.00	1.49	Fail
60	Ni	1	72	5132.70	P	38.90	0.76	Fail
60	Ni	2	---		P			
63	Cu	1	72	13968.08	P	291.20	2.08	Fail
63	Cu	2	---		P			
66	Zn	1	72	1794.83	P	23.37	1.30	Fail
66	Zn	2	---		P			
72	Ge	1	---	95146.78	P	2055.00	2.16	
72	Ge	2	---		P			
75	As	1	72	1005.49	P	39.06	3.88	Fail
78	Se	1	72	54.82	P	2.63	4.80	Fail
88	Sr	2	115	89274.65	P	1485.00	1.66	Fail
95	Mo	2	115	16024.54	P	359.70	2.24	Fail
107	Ag	2	115	40292.16	P	752.10	1.87	Fail
111	Cd	2	115	8390.22	P	178.60	2.13	Fail
115	In	2	---	5896651.00	A	69450.00	1.18	
118	Sn	2	115	25549.43	P	651.40	2.55	Fail
121	Sb	2	115	33325.38	P	299.00	0.90	Fail
137	Ba	2	115	12279.11	P	263.80	2.15	Fail
205	Tl	2	209	74951.03	P	947.20	1.26	Fail
208	Pb	2	209	103197.90	P	1845.00	1.79	Fail
209	Bi	2	---	5099348.00	A	75890.00	1.49	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4215.96	2.19	4259.45	99.0	70 - 120	
45	Sc	1	156004.80	1.82	152280.61	102.4	70 - 120	
45	Sc	2	5170003.00	1.12	5033455.00	102.7	70 - 120	
72	Ge	1	95146.78	2.16	93230.46	102.1	70 - 120	
115	In	2	5896651.00	1.18	5857332.00	100.7	70 - 120	
209	Bi	2	5099348.00	1.49	5068454.00	100.6	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 50/1000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 1 2014 01:27 pm
Last Cal. Update: Aug 01 2014 01:25 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4127.10	P	212.60	5.15	
7	Li	2	45	1333.46	P	8.82	0.66	Fail
9	Be	2	45	101496.10	P	439.60	0.43	Fail
11	B	2	45	63670.62	P	493.60	0.78	Fail
23	Na	1	45	182009.00	P	2648.00	1.45	Fail
24	Mg	1	45	74406.40	P	1759.00	2.36	Fail
27	Al	1	45	24197.26	P	657.40	2.72	Fail
39	K	1	45	57052.62	P	1283.00	2.25	Fail
44	Ca	2	45	207611.59	P	1322.00	0.64	Fail
45	Sc	1	---	160517.09	P	4379.00	2.73	
45	Sc	2	---	5127505.00	A	14980.00	0.29	
47	Ti	1	45	1078.29	P	14.87	1.38	Fail
51	V	1	45	41487.33	P	1266.00	3.05	Fail
51	V	2	---		P			
52	Cr	1	45	53427.90	P	1558.00	2.92	Fail
55	Mn	1	45	23826.33	P	1105.00	4.64	Fail
56	Fe	1	72	805869.50	P	27100.00	3.36	Fail
59	Co	1	72	87270.37	P	2299.00	2.63	
60	Ni	1	72	24805.17	P	498.80	2.01	Fail
60	Ni	2	---		P			
63	Cu	1	72	68263.59	P	1373.00	2.01	Fail
63	Cu	2	---		P			
66	Zn	1	72	8492.39	P	99.81	1.18	Fail
66	Zn	2	---		P			
72	Ge	1	---	98040.29	P	2280.00	2.33	
72	Ge	2	---		P			
75	As	1	72	5111.62	P	89.29	1.75	Fail
78	Se	1	72	278.26	P	11.83	4.25	Fail
88	Sr	2	115	441332.69	P	4481.00	1.02	Fail
95	Mo	2	115	81125.47	P	532.00	0.66	Fail
107	Ag	2	115	198176.50	P	1782.00	0.90	Fail
111	Cd	2	115	42475.56	P	780.30	1.84	Fail
115	In	2	---	5922552.00	A	31660.00	0.53	
118	Sn	2	115	124755.30	P	1311.00	1.05	Fail
121	Sb	2	115	166007.41	P	2785.00	1.68	Fail
137	Ba	2	115	61240.09	P	1064.00	1.74	Fail
205	Tl	2	209	371022.50	P	2998.00	0.81	Fail
208	Pb	2	209	510484.81	P	5845.00	1.15	Fail
209	Bi	2	---	5083702.00	A	64630.00	1.27	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4127.10	5.15	4259.45	96.9	70 - 120	
45	Sc	1	160517.08	2.73	152280.61	105.4	70 - 120	
45	Sc	2	5127505.00	0.29	5033455.00	101.9	70 - 120	
72	Ge	1	98040.29	2.33	93230.46	105.2	70 - 120	
115	In	2	5922552.00	0.53	5857332.00	101.1	70 - 120	
209	Bi	2	5083702.50	1.27	5068454.00	100.3	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 100/2000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 1 2014 01:33 pm
Last Cal. Update: Aug 01 2014 01:31 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4254.33	P	119.50	2.81	
7	Li	2	45	1300.12	P	74.24	5.71	Fail
9	Be	2	45	202989.09	P	3024.00	1.49	Fail
11	B	2	45	126781.80	P	716.40	0.57	Fail
23	Na	1	45	346324.19	P	4268.00	1.23	Fail
24	Mg	1	45	150712.70	P	2224.00	1.48	Fail
27	Al	1	45	48730.83	P	1243.00	2.55	Fail
39	K	1	45	106550.40	P	1442.00	1.35	Fail
44	Ca	2	45	385449.19	P	2163.00	0.56	Fail
45	Sc	1	---	161470.91	P	3216.00	1.99	
45	Sc	2	---	5099918.00	A	16160.00	0.32	
47	Ti	1	45	2163.78	P	30.91	1.43	
51	V	1	45	83018.11	P	1375.00	1.66	Fail
51	V	2	---		P			
52	Cr	1	45	106400.90	P	2371.00	2.23	Fail
55	Mn	1	45	47589.77	P	990.80	2.08	
56	Fe	1	72	1634627.00	A	38290.00	2.34	
59	Co	1	72	173986.00	P	3020.00	1.74	
60	Ni	1	72	49043.67	P	621.20	1.27	Fail
60	Ni	2	---		P			
63	Cu	1	72	135300.09	P	2109.00	1.56	Fail
63	Cu	2	---		P			
66	Zn	1	72	16657.26	P	212.40	1.28	Fail
66	Zn	2	---		P			
72	Ge	1	---	97872.47	P	1291.00	1.32	
72	Ge	2	---		P			
75	As	1	72	10125.36	P	160.00	1.58	Fail
78	Se	1	72	548.38	P	17.48	3.19	Fail
88	Sr	2	115	879415.63	P	2679.00	0.30	Fail
95	Mo	2	115	163229.70	P	1982.00	1.21	Fail
107	Ag	2	115	395286.09	P	1383.00	0.35	Fail
111	Cd	2	115	84312.73	P	603.80	0.72	Fail
115	In	2	---	5919328.00	A	47690.00	0.81	
118	Sn	2	115	249919.20	P	2454.00	0.98	Fail
121	Sb	2	115	331968.31	P	1784.00	0.54	Fail
137	Ba	2	115	122173.10	P	1641.00	1.34	Fail
205	Tl	2	209	749399.13	P	11250.00	1.50	Fail
208	Pb	2	209	1029001.00	P	13040.00	1.27	Fail
209	Bi	2	---	5101266.00	A	26470.00	0.52	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4254.32	2.81	4259.45	99.9	70 - 120	
45	Sc	1	161470.92	1.99	152280.61	106.0	70 - 120	
45	Sc	2	5099917.50	0.32	5033455.00	101.3	70 - 120	
72	Ge	1	97872.47	1.32	93230.46	105.0	70 - 120	
115	In	2	5919328.00	0.81	5857332.00	101.1	70 - 120	
209	Bi	2	5101266.00	0.52	5068454.00	100.6	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 250/5000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 1 2014 01:39 pm
Last Cal. Update: Aug 01 2014 01:37 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4146.73	P	146.70	3.54	
7	Li	2	45	1337.90	P	37.17	2.78	Fail
9	Be	2	45	506208.41	P	1923.00	0.38	Fail
11	B	2	45	309793.41	P	356.10	0.11	Fail
23	Na	1	45	836403.13	A	4362.00	0.52	Fail
24	Mg	1	45	367851.31	P	5063.00	1.38	
27	Al	1	45	119041.80	P	3176.00	2.67	Fail
39	K	1	45	249423.00	P	2352.00	0.94	Fail
44	Ca	2	45	950916.19	A	10350.00	1.09	Fail
45	Sc	1	---	158420.20	P	2197.00	1.39	
45	Sc	2	---	5055464.00	A	12050.00	0.24	
47	Ti	1	45	5325.66	P	209.80	3.94	
51	V	1	45	206037.30	P	3946.00	1.92	
51	V	2	---		A			
52	Cr	1	45	260300.70	P	5743.00	2.21	Fail
55	Mn	1	45	116848.00	P	2470.00	2.11	
56	Fe	1	72	3938857.00	A	101700.00	2.58	
59	Co	1	72	426870.59	P	5404.00	1.27	
60	Ni	1	72	120272.90	P	1017.00	0.85	Fail
60	Ni	2	---		P			
63	Cu	1	72	330649.81	P	2878.00	0.87	Fail
63	Cu	2	---		P			
66	Zn	1	72	40665.59	P	516.40	1.27	Fail
66	Zn	2	---		P			
72	Ge	1	---	95897.54	P	847.90	0.88	
72	Ge	2	---		P			
75	As	1	72	24728.85	P	344.20	1.39	
78	Se	1	72	1338.48	P	38.52	2.88	Fail
88	Sr	2	115	2233050.00	A	15190.00	0.68	Fail
95	Mo	2	115	403774.31	P	4283.00	1.06	Fail
107	Ag	2	115	976196.00	P	7134.00	0.73	Fail
111	Cd	2	115	209512.00	P	1794.00	0.86	Fail
115	In	2	---	5833772.00	A	32600.00	0.56	
118	Sn	2	115	621834.00	P	4425.00	0.71	Fail
121	Sb	2	115	824966.38	P	8059.00	0.98	Fail
137	Ba	2	115	304117.50	P	3326.00	1.09	Fail
205	Tl	2	209	1906639.00	A	24960.00	1.31	Fail
208	Pb	2	209	2578822.00	A	30100.00	1.17	Fail
209	Bi	2	---	4972969.00	A	60610.00	1.22	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4146.73	3.54	4259.45	97.4	70 - 120	
45	Sc	1	158420.22	1.39	152280.61	104.0	70 - 120	
45	Sc	2	5055464.50	0.24	5033455.00	100.4	70 - 120	
72	Ge	1	95897.54	0.88	93230.46	102.9	70 - 120	
115	In	2	5833772.50	0.56	5857332.00	99.6	70 - 120	
209	Bi	2	4972969.50	1.22	5068454.00	98.1	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 500/10000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 1 2014 01:45 pm
Last Cal. Update: Aug 01 2014 01:43 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4315.22	P	170.30	3.95	
7	Li	2	45	1330.12	P	59.26	4.46	Fail
9	Be	2	45	961928.63	A	10020.00	1.04	
11	B	2	45	626107.00	P	2851.00	0.46	Fail
23	Na	1	45	1635054.00	A	8660.00	0.53	Fail
24	Mg	1	45	726659.50	P	14640.00	2.01	
27	Al	1	45	233854.50	P	5282.00	2.26	
39	K	1	45	489477.00	P	10580.00	2.16	Fail
44	Ca	2	45	1860240.00	A	11870.00	0.64	Fail
45	Sc	1	---	158930.50	P	2433.00	1.53	
45	Sc	2	---	5200128.00	A	24960.00	0.48	
47	Ti	1	45	10731.45	P	154.40	1.44	
51	V	1	45	407621.00	P	8034.00	1.97	
51	V	2	---		A			
52	Cr	1	45	515552.00	P	10580.00	2.05	Fail
55	Mn	1	45	231017.30	P	4403.00	1.91	
56	Fe	1	72	7622961.00	A	120700.00	1.58	
59	Co	1	72	850856.63	P	9687.00	1.14	
60	Ni	1	72	239319.50	P	2828.00	1.18	
60	Ni	2	---		P			
63	Cu	1	72	654293.50	P	10410.00	1.59	
63	Cu	2	---		A			
66	Zn	1	72	80552.24	P	1585.00	1.97	Fail
66	Zn	2	---		P			
72	Ge	1	---	96157.63	P	1316.00	1.37	
72	Ge	2	---		P			
75	As	1	72	49240.96	P	721.80	1.47	
78	Se	1	72	2652.29	P	53.58	2.02	
88	Sr	2	115	4406090.00	A	20150.00	0.46	Fail
95	Mo	2	115	819765.00	P	4653.00	0.57	Fail
107	Ag	2	115	1998354.00	A	12600.00	0.63	
111	Cd	2	115	420606.91	P	2264.00	0.54	Fail
115	In	2	---	5915160.00	A	77420.00	1.31	
118	Sn	2	115	1288994.00	A	5330.00	0.41	Fail
121	Sb	2	115	1715091.00	A	12820.00	0.75	Fail
137	Ba	2	115	611639.88	P	4365.00	0.71	Fail
205	Tl	2	209	3746408.00	A	6976.00	0.19	Fail
208	Pb	2	209	5234078.00	A	21890.00	0.42	Fail
209	Bi	2	---	5065732.00	A	18450.00	0.36	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4315.22	3.95	4259.45	101.3	70 - 120	
45	Sc	1	158930.48	1.53	152280.61	104.4	70 - 120	
45	Sc	2	5200128.50	0.48	5033455.00	103.3	70 - 120	
72	Ge	1	96157.63	1.37	93230.46	103.1	70 - 120	
115	In	2	5915160.50	1.31	5857332.00	101.0	70 - 120	
209	Bi	2	5065732.50	0.36	5068454.00	99.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 2000/25000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 1 2014 01:51 pm
Last Cal. Update: Aug 01 2014 01:49 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	4222.59	P	112.50	2.66	
7	Li	2	45	1402.36	P	38.64	2.76	Fail
9	Be	2	45	3495849.00	A	9097.00	0.26	
11	B	2	45	2252936.00	A	12350.00	0.55	Fail
23	Na	1	45	3889340.00	A	38080.00	0.98	Fail
24	Mg	1	45	1822061.00	A	25470.00	1.40	
27	Al	1	45	517.36	P	95.02	18.37	Fail
39	K	1	45	1208031.00	A	28240.00	2.34	Fail
44	Ca	2	45	4374781.00	A	27030.00	0.62	Fail
45	Sc	1	---	159825.91	P	2476.00	1.55	
45	Sc	2	---	5186987.00	A	43680.00	0.84	
47	Ti	1	45	39874.75	P	963.00	2.42	
51	V	1	45	1593470.00	A	35140.00	2.21	
51	V	2	---		A			
52	Cr	1	45	1982560.00	A	37480.00	1.89	
55	Mn	1	45	871399.19	P	17790.00	2.04	
56	Fe	1	72	13192.71	P	2033.00	15.41	Fail
59	Co	1	72	3179776.00	A	71080.00	2.24	
60	Ni	1	72	891367.00	P	10780.00	1.21	
60	Ni	2	---		A			
63	Cu	1	72	2454173.00	A	14580.00	0.59	
63	Cu	2	---		A			
66	Zn	1	72	300294.31	P	4701.00	1.57	
66	Zn	2	---		A			
72	Ge	1	---	96357.13	P	818.90	0.85	
72	Ge	2	---		P			
75	As	1	72	187920.00	P	2581.00	1.37	
78	Se	1	72	10073.36	P	220.50	2.19	
88	Sr	2	115	16253790.00	A	166800.00	1.03	Fail
95	Mo	2	115	3110574.00	A	49790.00	1.60	
107	Ag	2	115	1821.42	P	565.60	31.05	Fail
111	Cd	2	115	1607583.00	A	14800.00	0.92	
115	In	2	---	5899714.00	A	36560.00	0.62	
118	Sn	2	115	4582644.00	A	9631.00	0.21	Fail
121	Sb	2	115	1850.31	P	454.20	24.55	Fail
137	Ba	2	115	2351662.00	A	21340.00	0.91	Fail
205	Tl	2	209	13837110.00	A	101200.00	0.73	
208	Pb	2	209	18905600.00	A	73930.00	0.39	
209	Bi	2	---	4995840.00	A	66680.00	1.33	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2		4222.59	2.66	4259.45	99.1	70 -	120	
45	Sc	1		159825.91	1.55	152280.61	105.0	70 -	120	
45	Sc	2		5186987.00	0.84	5033455.00	103.1	70 -	120	
72	Ge	1		96357.13	0.85	93230.46	103.4	70 -	120	
115	In	2		5899714.50	0.62	5857332.00	100.7	70 -	120	
209	Bi	2		4995840.50	1.33	5068454.00	98.6	70 -	120	

ICSA QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\014ICSA.D\014ICSA.D#

Date Acquired:	Aug 1 2014 02:09 pm	Sample Name:	**ICSA-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	1323.000	ppb	6.26	8.00	5.00	FailSoil
9	Be	2	45	0.239	ppb	18.91	0.32	0.80	
11	B	2	45	10.380	ppb	1.54	30.00	30.00	
23	Na	1	45	103800.000	ppb	1.86	#######	#######	
24	Mg	1	45	103200.000	ppb	3.08	#######	#######	
27	Al	1	45	99670.000	ppb	2.66	#######	#######	
39	K	1	45	104600.000	ppb	1.82	#######	#######	
44	Ca	2	45	102400.000	ppb	0.71	#######	#######	
47	Ti	1	45	2052.000	ppb	3.26	10.00	10.00	
51	V	1	45	0.278	ppb	15.19	10.00	10.00	
52	Cr	1	45	0.701	ppb	8.01	8.00	5.00	
55	Mn	1	45	2.626	ppb	9.56	8.00	10.00	
56	Fe	1	72	93240.000	ppb	2.67	#######	#######	
59	Co	1	72	0.896	ppb	14.67	8.00	10.00	
60	Ni	1	72	0.573	ppb	13.99	8.00	10.00	
63	Cu	1	72	1.009	ppb	2.27	8.00	10.00	
66	Zn	1	72	1.520	ppb	5.74	10.00	5.00	
75	As	1	72	0.772	ppb	13.00	4.00	5.00	
78	Se	1	72	0.933	ppb	11.87	2.00	5.00	
88	Sr	2	115	0.697	ppb	6.66	10.00	10.00	
95	Mo	2	115	1956.000	ppb	0.84	8.00	5.00	
107	Ag	2	115	0.196	ppb	12.39	0.80	2.00	
111	Cd	2	115	0.736	ppb	17.90	1.20	1.00	
118	Sn	2	115	0.008	ppb	4.78	10.00	10.00	
121	Sb	2	115	0.735	ppb	5.76	4.00	2.50	
137	Ba	2	115	0.590	ppb	9.27	8.00	10.00	
205	Tl	2	209	0.410	ppb	13.65	4.00	1.50	
208	Pb	2	209	0.711	ppb	7.32	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3999.92	1.68	4259.45	93.9	70 - 120	
45	Sc	1	158889.19	2.44	152280.61	104.3	70 - 120	
45	Sc	2	4972369.50	0.70	5033455.00	98.8	70 - 120	
72	Ge	1	95686.96	2.14	93230.46	102.6	70 - 120	
115	In	2	5460468.50	1.78	5857332.00	93.2	70 - 120	
209	Bi	2	4580930.50	1.36	5068454.00	90.4	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\015ICSB.D\015ICSB.D#

Date Acquired:	Aug 1 2014 02:15 pm	Sample Name:	**ICSAB-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	1224.00	ppb	1.36	---	80 -		120	
9	Be	2	45	0.19	ppb	19.95	---	80 -		120	
11	B	2	45	7.99	ppb	2.88	---	80 -		120	
23	Na	1	45	104100.00	ppb	2.45	100000.00	80 -		120	
24	Mg	1	45	102600.00	ppb	3.17	100000.00	80 -		120	
27	Al	1	45	97640.00	ppb	3.72	100000.00	80 -		120	
39	K	1	45	103900.00	ppb	2.68	100000.00	80 -		120	
44	Ca	2	45	102500.00	ppb	0.56	100000.00	80 -		120	
47	Ti	1	45	2065.00	ppb	2.98	---	80 -		120	
51	V	1	45	39.57	ppb	2.94	40.00	80 -		120	
52	Cr	1	45	20.15	ppb	1.64	20.00	80 -		120	
55	Mn	1	45	21.95	ppb	2.04	20.00	80 -		120	
56	Fe	1	72	93080.00	ppb	3.15	100000.00	80 -		120	
59	Co	1	72	39.85	ppb	3.10	40.00	80 -		120	
60	Ni	1	72	38.77	ppb	3.18	40.00	80 -		120	
63	Cu	1	72	19.85	ppb	2.29	20.00	80 -		120	
66	Zn	1	72	19.82	ppb	1.30	20.00	80 -		120	
75	As	1	72	20.81	ppb	2.56	20.00	80 -		120	
78	Se	1	72	20.03	ppb	2.30	20.00	80 -		120	
88	Sr	2	115	1.85	ppb	2.40	---	80 -		120	
95	Mo	2	115	1939.00	ppb	1.29	---	80 -		120	
107	Ag	2	115	18.58	ppb	1.02	20.00	80 -		120	
111	Cd	2	115	10.17	ppb	3.56	10.00	80 -		120	
118	Sn	2	115	-0.22	ppb	8.30	---	80 -		120	
121	Sb	2	115	0.45	ppb	2.28	---	80 -		120	
137	Ba	2	115	0.42	ppb	13.78	---	80 -		120	
205	Tl	2	209	0.23	ppb	5.64	---	80 -		120	
208	Pb	2	209	0.44	ppb	2.92	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3844.60	3.51	4259.45	90.3	70 -		120	
45	Sc	1	158513.77	2.16	152280.61	104.1	70 -		120	
45	Sc	2	4977236.50	0.78	5033455.00	98.9	70 -		120	
72	Ge	1	95167.68	2.15	93230.46	102.1	70 -		120	
115	In	2	5510198.00	2.19	5857332.00	94.1	70 -		120	
209	Bi	2	4602598.50	1.67	5068454.00	90.8	70 -		120	

CCV QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\022ICV.D\022ICV.D#

Date Acquired:	Aug 1 2014 02:57 pm	Sample Name:	**ICV1-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag	
7	Li	2	45	-3808.00	ppb	4.28	100.00	90 -	110	######	Fail	
9	Be	2	45	101.90	ppb	1.27	100.00	90 -	110	101.9		
11	B	2	45	107.50	ppb	0.88	100.00	90 -	110	107.5		
23	Na	1	45	2755.00	ppb	2.26	2500.00	90 -	110	110.2	Fail	ROUNDS TO 110%
24	Mg	1	45	2700.00	ppb	3.08	2500.00	90 -	110	108.0		
27	Al	1	45	2433.00	ppb	3.37	2500.00	90 -	110	97.3		
39	K	1	45	2683.00	ppb	2.43	2500.00	90 -	110	107.3		
44	Ca	2	45	2566.00	ppb	1.02	2500.00	90 -	110	102.6		
47	Ti	1	45	102.70	ppb	3.56	100.00	90 -	110	102.7		
51	V	1	45	96.57	ppb	3.55	100.00	90 -	110	96.6		
52	Cr	1	45	100.90	ppb	3.23	100.00	90 -	110	100.9		
55	Mn	1	45	99.44	ppb	2.93	100.00	90 -	110	99.4		
56	Fe	1	72	2546.00	ppb	2.74	2500.00	90 -	110	101.8		
59	Co	1	72	104.80	ppb	2.40	100.00	90 -	110	104.8		
60	Ni	1	72	103.50	ppb	2.16	100.00	90 -	110	103.5		
63	Cu	1	72	102.20	ppb	2.15	100.00	90 -	110	102.2		
66	Zn	1	72	98.90	ppb	2.10	100.00	90 -	110	98.9		
75	As	1	72	98.76	ppb	2.86	100.00	90 -	110	98.8		
78	Se	1	72	97.79	ppb	4.09	100.00	90 -	110	97.8		
88	Sr	2	115	98.72	ppb	1.82	100.00	90 -	110	98.7		
95	Mo	2	115	89.46	ppb	1.30	100.00	90 -	110	89.5	Fail	
107	Ag	2	115	94.13	ppb	1.82	100.00	90 -	110	94.1		
111	Cd	2	115	95.95	ppb	2.39	100.00	90 -	110	96.0		
118	Sn	2	115	99.63	ppb	1.64	100.00	90 -	110	99.6		
121	Sb	2	115	92.25	ppb	2.00	100.00	90 -	110	92.3		
137	Ba	2	115	95.84	ppb	2.06	100.00	90 -	110	95.8		
205	Tl	2	209	99.45	ppb	1.35	100.00	90 -	110	99.5		
208	Pb	2	209	101.10	ppb	1.83	100.00	90 -	110	101.1		

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4391.48	3.29	4259.45	103.1	70 -	120		
45	Sc	1	164476.08	1.78	152280.61	108.0	70 -	120		
45	Sc	2	5166355.50	0.98	5033455.00	102.6	70 -	120		
72	Ge	1	99021.13	1.33	93230.46	106.2	70 -	120		
115	In	2	5947725.50	1.24	5857332.00	101.5	70 -	120		
209	Bi	2	5034593.00	0.73	5068454.00	99.3	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\023LCVL.D\023LCVL.D#

Date Acquired:	Aug 1 2014 03:03 pm	Sample Name:	**ILCVL-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	5389.00	ppb	5.68	5.00	70 -	130	######	Fail
9	Be	2	45	1.23	ppb	2.97	1.00	70 -	130	122.8	
11	B	2	45	25.85	ppb	0.54	20.00	70 -	130	129.3	
23	Na	1	45	119.60	ppb	2.16	100.00	70 -	130	119.6	
24	Mg	1	45	111.10	ppb	6.99	100.00	70 -	130	111.1	
27	Al	1	45	106.30	ppb	5.44	100.00	70 -	130	106.3	
39	K	1	45	99.70	ppb	2.23	100.00	70 -	130	99.7	
44	Ca	2	45	28.47	ppb	1.92	100.00	70 -	130	28.5	Fail
47	Ti	1	45	5.73	ppb	8.50	5.00	70 -	130	114.6	
51	V	1	45	1.17	ppb	3.57	1.00	70 -	130	116.7	
52	Cr	1	45	5.81	ppb	2.53	5.00	70 -	130	116.1	
55	Mn	1	45	5.69	ppb	2.61	5.00	70 -	130	113.8	
56	Fe	1	72	109.30	ppb	2.59	100.00	70 -	130	109.3	
59	Co	1	72	5.75	ppb	2.09	5.00	70 -	130	114.9	
60	Ni	1	72	5.67	ppb	3.15	5.00	70 -	130	113.5	
63	Cu	1	72	5.48	ppb	1.73	5.00	70 -	130	109.7	
66	Zn	1	72	4.88	ppb	4.01	5.00	70 -	130	97.5	
75	As	1	72	5.69	ppb	2.34	5.00	70 -	130	113.8	
78	Se	1	72	5.73	ppb	5.79	5.00	70 -	130	114.5	
88	Sr	2	115	5.53	ppb	1.31	5.00	70 -	130	110.6	
95	Mo	2	115	5.54	ppb	0.14	5.00	70 -	130	110.7	
107	Ag	2	115	2.20	ppb	1.39	2.00	70 -	130	109.8	
111	Cd	2	115	1.22	ppb	9.08	1.00	70 -	130	121.7	
118	Sn	2	115	5.04	ppb	0.54	5.00	70 -	130	100.8	
121	Sb	2	115	2.15	ppb	2.49	2.00	70 -	130	107.6	
137	Ba	2	115	5.37	ppb	1.03	5.00	70 -	130	107.4	
205	Tl	2	209	1.28	ppb	1.39	1.00	70 -	130	128.3	
208	Pb	2	209	1.22	ppb	1.95	1.00	70 -	130	121.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4385.81	1.06	4259.45	103.0	70 -	120		
45	Sc	1	160430.23	2.16	152280.61	105.4	70 -	120		
45	Sc	2	5030206.00	0.75	5033455.00	99.9	70 -	120		
72	Ge	1	98720.38	1.51	93230.46	105.9	70 -	120		
115	In	2	5804493.00	1.06	5857332.00	99.1	70 -	120		
209	Bi	2	4968857.00	1.51	5068454.00	98.0	70 -	120		

ICB QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\024_ICB.D\024_ICB.D#

Date Acquired:	Aug 1 2014 03:10 pm	Sample Name:	**ICB1-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Instrument:	ICPMS3

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	5766.00	ppb	4.60	5.00	Fail
9	Be	2	45	0.05	ppb	5.73	0.80	
11	B	2	45	1.91	ppb	2.33	10.00	
23	Na	1	45	4.07	ppb	1.94	50.00	
24	Mg	1	45	0.57	ppb	8.44	50.00	
27	Al	1	45	-2.09	ppb	5.67	30.00	
39	K	1	45	-9.38	ppb	2.10	50.00	
44	Ca	2	45	-84.62	ppb	2.25	50.00	
47	Ti	1	45	0.02	ppb	132.30	10.00	
51	V	1	45	0.01	ppb	14.25	10.00	
52	Cr	1	45	0.01	ppb	5.80	3.00	
55	Mn	1	45	0.05	ppb	12.50	10.00	
56	Fe	1	72	2.14	ppb	7.44	50.00	
59	Co	1	72	0.06	ppb	10.59	3.00	
60	Ni	1	72	-0.03	ppb	3.76	3.00	
63	Cu	1	72	-0.19	ppb	4.34	3.00	
66	Zn	1	72	-1.00	ppb	16.14	10.00	
75	As	1	72	0.15	ppb	6.30	10.00	
78	Se	1	72	0.25	ppb	15.61	10.00	
88	Sr	2	115	0.01	ppb	8.51	10.00	
95	Mo	2	115	0.44	ppb	8.15	10.00	
107	Ag	2	115	0.04	ppb	27.92	2.00	
111	Cd	2	115	0.02	ppb	45.09	1.00	
118	Sn	2	115	-0.57	ppb	7.21	10.00	
121	Sb	2	115	0.05	ppb	20.61	1.00	
137	Ba	2	115	0.01	ppb	22.68	3.00	
205	Tl	2	209	0.10	ppb	4.97	1.00	
208	Pb	2	209	0.06	ppb	13.14	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4410.25	2.48	4259.45	103.5	70 - 120	
45	Sc	1	161404.42	2.89	152280.61	106.0	70 - 120	
45	Sc	2	5054402.50	0.98	5033455.00	100.4	70 - 120	
72	Ge	1	98931.31	1.84	93230.46	106.1	70 - 120	
115	In	2	5770084.00	1.44	5857332.00	98.5	70 - 120	
209	Bi	2	4983165.50	1.67	5068454.00	98.3	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\025__PB.D\025__PB.D#

Date Acquired:	Aug 1 2014 03:16 pm	Sample Name:	**MB-64972**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLK6020A_DW
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.	RSD(%)	MDL	RL	Flag
7	Li	2	45	5640.000 ppb	1.86	2.0	5.00	Fail
9	Be	2	45	0.034 ppb	8.30	0.3	0.80	
11	B	2	45	1.303 ppb	2.12	10.0	30.00	
23	Na	1	45	-1.135 ppb	2.95	100.0	#####	
24	Mg	1	45	3.020 ppb	16.50	100.0	#####	
27	Al	1	45	-0.869 ppb	9.48	10.0	30.00	
39	K	1	45	-18.670 ppb	1.71	100.0	#####	
44	Ca	2	45	-83.360 ppb	0.70	100.0	#####	
47	Ti	1	45	-0.012 ppb	91.66	3.0	10.00	
51	V	1	45	0.005 ppb	4.78	3.0	10.00	
52	Cr	1	45	-0.044 ppb	2.57	2.0	5.00	
55	Mn	1	45	0.004 ppb	10.20	3.0	10.00	
56	Fe	1	72	1.228 ppb	1.76	50.0	#####	
59	Co	1	72	0.023 ppb	10.10	3.0	10.00	
60	Ni	1	72	-0.084 ppb	6.51	3.0	10.00	
63	Cu	1	72	-0.196 ppb	2.63	2.0	10.00	
66	Zn	1	72	-0.306 ppb	11.64	2.0	5.00	
75	As	1	72	0.105 ppb	0.67	2.0	5.00	
78	Se	1	72	0.022 ppb	10.86	2.0	5.00	
88	Sr	2	115	0.014 ppb	7.80	3.0	10.00	
95	Mo	2	115	0.285 ppb	3.08	2.0	5.00	
107	Ag	2	115	0.017 ppb	13.45	1.0	2.00	
111	Cd	2	115	0.027 ppb	34.79	0.3	1.00	
118	Sn	2	115	-0.566 ppb	11.74	3.0	10.00	
121	Sb	2	115	0.036 ppb	16.10	0.8	2.50	
137	Ba	2	115	-0.010 ppb	17.41	3.0	10.00	
205	Tl	2	209	0.054 ppb	19.38	0.5	1.50	
208	Pb	2	209	0.033 ppb	11.22	0.3	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4491.63	1.32	4259.45	105.5	70 - 120	
45	Sc	1	165698.30	2.62	152280.61	108.8	70 - 120	
45	Sc	2	5261006.50	0.82	5033455.00	104.5	70 - 120	
72	Ge	1	100680.07	1.16	93230.46	108.0	70 - 120	
115	In	2	5934610.50	1.17	5857332.00	101.3	70 - 120	
209	Bi	2	5062217.00	1.04	5068454.00	99.9	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\027_LCS.D\027_LCS.D#

Date Acquired:	Aug 1 2014 03:28 pm	Sample Name:	**LCS-64972**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS 6020A_DW
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	5156.00	ppb	1.49	200.00	80 -	120	2578.0	Fail
9	Be	2	45	212.20	ppb	0.92	200.00	80 -	120	106.1	
11	B	2	45	217.90	ppb	0.90	200.00	80 -	120	109.0	
23	Na	1	45	5370.00	ppb	1.88	5000.00	80 -	120	107.4	
24	Mg	1	45	5071.00	ppb	2.83	5000.00	80 -	120	101.4	
27	Al	1	45	4950.00	ppb	3.16	5000.00	80 -	120	99.0	
39	K	1	45	5111.00	ppb	1.74	5000.00	80 -	120	102.2	
44	Ca	2	45	5224.00	ppb	1.36	5000.00	80 -	120	104.5	
47	Ti	1	45	207.10	ppb	1.90	200.00	80 -	120	103.6	
51	V	1	45	203.90	ppb	2.60	200.00	80 -	120	102.0	
52	Cr	1	45	208.60	ppb	2.58	200.00	80 -	120	104.3	
55	Mn	1	45	210.10	ppb	2.95	200.00	80 -	120	105.1	
56	Fe	1	72	5088.00	ppb	2.21	5000.00	80 -	120	101.8	
59	Co	1	72	214.10	ppb	2.21	200.00	80 -	120	107.1	
60	Ni	1	72	215.60	ppb	2.05	200.00	80 -	120	107.8	
63	Cu	1	72	213.10	ppb	1.62	200.00	80 -	120	106.6	
66	Zn	1	72	211.30	ppb	2.76	200.00	80 -	120	105.7	
75	As	1	72	208.60	ppb	2.58	200.00	80 -	120	104.3	
78	Se	1	72	207.40	ppb	3.48	200.00	80 -	120	103.7	
88	Sr	2	115	213.50	ppb	1.87	200.00	80 -	120	106.8	
95	Mo	2	115	194.60	ppb	1.83	200.00	80 -	120	97.3	
107	Ag	2	115	197.60	ppb	1.41	200.00	80 -	120	98.8	
111	Cd	2	115	204.60	ppb	1.48	200.00	80 -	120	102.3	
118	Sn	2	115	207.90	ppb	1.70	200.00	80 -	120	104.0	
121	Sb	2	115	192.70	ppb	1.60	200.00	80 -	120	96.4	
137	Ba	2	115	202.80	ppb	1.81	200.00	80 -	120	101.4	
205	Tl	2	209	216.10	ppb	1.90	200.00	80 -	120	108.1	
208	Pb	2	209	209.00	ppb	1.71	200.00	80 -	120	104.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4307.43	3.23	4259.45	101.1	70 -	120		
45	Sc	1	165855.27	1.62	152280.61	108.9	70 -	120		
45	Sc	2	5165906.00	0.72	5033455.00	102.6	70 -	120		
72	Ge	1	99955.20	1.26	93230.46	107.2	70 -	120		
115	In	2	5861379.50	1.40	5857332.00	100.1	70 -	120		
209	Bi	2	4949941.50	1.27	5068454.00	97.7	70 -	120		

LCS QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\028_LCS.D\028_LCS.D#

Date Acquired:	Aug 1 2014 03:34 pm	Sample Name:	**LCSD-64972**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSD6020A_DW
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	4514.00	ppb	7.42	200.00	80 -	120	2257.0	Fail
9	Be	2	45	211.30	ppb	0.45	200.00	80 -	120	105.7	
11	B	2	45	219.20	ppb	0.55	200.00	80 -	120	109.6	
23	Na	1	45	5389.00	ppb	1.38	5000.00	80 -	120	107.8	
24	Mg	1	45	5117.00	ppb	2.77	5000.00	80 -	120	102.3	
27	Al	1	45	5091.00	ppb	3.17	5000.00	80 -	120	101.8	
39	K	1	45	5225.00	ppb	2.68	5000.00	80 -	120	104.5	
44	Ca	2	45	5338.00	ppb	1.07	5000.00	80 -	120	106.8	
47	Ti	1	45	208.00	ppb	2.25	200.00	80 -	120	104.0	
51	V	1	45	207.10	ppb	1.99	200.00	80 -	120	103.6	
52	Cr	1	45	209.40	ppb	2.41	200.00	80 -	120	104.7	
55	Mn	1	45	212.80	ppb	2.58	200.00	80 -	120	106.4	
56	Fe	1	72	5134.00	ppb	2.50	5000.00	80 -	120	102.7	
59	Co	1	72	214.10	ppb	1.83	200.00	80 -	120	107.1	
60	Ni	1	72	214.90	ppb	1.79	200.00	80 -	120	107.5	
63	Cu	1	72	213.70	ppb	1.25	200.00	80 -	120	106.9	
66	Zn	1	72	214.00	ppb	2.20	200.00	80 -	120	107.0	
75	As	1	72	212.40	ppb	2.22	200.00	80 -	120	106.2	
78	Se	1	72	211.10	ppb	4.56	200.00	80 -	120	105.6	
88	Sr	2	115	212.20	ppb	0.82	200.00	80 -	120	106.1	
95	Mo	2	115	196.60	ppb	1.27	200.00	80 -	120	98.3	
107	Ag	2	115	200.50	ppb	1.52	200.00	80 -	120	100.3	
111	Cd	2	115	205.20	ppb	0.60	200.00	80 -	120	102.6	
118	Sn	2	115	208.70	ppb	0.17	200.00	80 -	120	104.4	
121	Sb	2	115	195.80	ppb	0.90	200.00	80 -	120	97.9	
137	Ba	2	115	203.70	ppb	1.46	200.00	80 -	120	101.9	
205	Tl	2	209	215.30	ppb	1.10	200.00	80 -	120	107.7	
208	Pb	2	209	209.80	ppb	1.26	200.00	80 -	120	104.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	4426.72	0.87	4259.45	103.9	70 -	120	
45	Sc	1	167274.80	2.44	152280.61	109.8	70 -	120	
45	Sc	2	5139213.50	0.68	5033455.00	102.1	70 -	120	
72	Ge	1	100821.97	1.49	93230.46	108.1	70 -	120	
115	In	2	5778478.50	0.75	5857332.00	98.7	70 -	120	
209	Bi	2	4949068.00	1.36	5068454.00	97.6	70 -	120	

DT QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\031DT1.D\031DT1.D#

Date Acquired:	Aug 1 2014 03:52 pm	Sample Name:	**1407346-02B SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD 6020A_DW
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	~~1.00~~ 5

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	-186500.00	ppb	0.51	3874.76	90 - 110	######	
9	Be	2	45	0.04	ppb	37.49	0.10	90 - 110	187.8	
11	B	2	45	28.96	ppb	0.31	131.40	90 - 110	110.2	
23	Na	1	45	27860.00	ppb	1.36	132900.00	90 - 110	104.8	GOOD
24	Mg	1	45	5685.00	ppb	2.29	27620.00	90 - 110	102.9	GOOD
27	Al	1	45	2.73	ppb	2.08	9.79	90 - 110	139.6	
39	K	1	45	106.60	ppb	1.34	542.20	90 - 110	98.3	GOOD
44	Ca	2	45	34790.00	ppb	0.27	168600.00	90 - 110	103.2	GOOD
47	Ti	1	45	0.01	ppb	86.59	0.22	90 - 110	25.8	
51	V	1	45	0.31	ppb	4.22	1.39	90 - 110	110.8	
52	Cr	1	45	0.01	ppb	4.72	0.09	90 - 110	75.8	
55	Mn	1	45	107.00	ppb	2.60	512.40	90 - 110	104.4	GOOD
56	Fe	1	72	3.23	ppb	9.94	12.31	90 - 110	131.4	
59	Co	1	72	0.55	ppb	4.27	2.56	90 - 110	108.3	GOOD
60	Ni	1	72	0.63	ppb	6.24	3.07	90 - 110	103.0	GOOD
63	Cu	1	72	0.05	ppb	1.89	1.07	90 - 110	22.5	
66	Zn	1	72	-0.40	ppb	2.28	1.70	90 - 110	-116.5	
75	As	1	72	0.38	ppb	5.21	1.50	90 - 110	128.2	
78	Se	1	72	0.17	ppb	8.31	0.38	90 - 110	216.8	
88	Sr	2	115	146.60	ppb	1.77	699.90	90 - 110	104.7	GOOD
95	Mo	2	115	0.41	ppb	13.13	1.17	90 - 110	178.1	
107	Ag	2	115	0.02	ppb	51.48	0.05	90 - 110	188.1	
111	Cd	2	115	0.03	ppb	49.40	0.08	90 - 110	164.1	
118	Sn	2	115	-0.56	ppb	15.10	-0.47	90 - 110	603.7	
121	Sb	2	115	0.08	ppb	20.78	0.22	90 - 110	185.7	
137	Ba	2	115	53.73	ppb	1.40	267.20	90 - 110	100.5	GOOD
205	Tl	2	209	0.07	ppb	17.43	0.15	90 - 110	234.6	
208	Pb	2	209	0.07	ppb	11.61	0.21	90 - 110	172.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	3874.76	2.26	4259.45	91.0	70 -	120	
45	Sc	1	163376.20	1.85	152280.61	107.3	70 -	120	
45	Sc	2	5038254.00	0.24	5033455.00	100.1	70 -	120	
72	Ge	1	99219.93	1.44	93230.46	106.4	70 -	120	
115	In	2	5784448.00	0.48	5857332.00	98.8	70 -	120	
209	Bi	2	4832370.50	0.66	5068454.00	95.3	70 -	120	

PDS QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\041_PDS.D\041_PDS.D#

Date Acquired:	Aug 1 2014 04:52 pm	Sample Name:	**1407346-02B PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS 6020A_DW
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element			Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7 Li	2	45	-875700.00	ppb	1.49	2176.96	200	75-125	######	Fail
9 Be	2	45	201.70	ppb	0.95	0.10	200	75-125	100.8	
11 B	2	45	334.10	ppb	0.69	131.40	200	75-125	101.4	
23 Na	1	45	131800.00	ppb	1.89	132900.00	5000	75-125	-22.0	Fail
24 Mg	1	45	31570.00	ppb	2.62	27620.00	5000	75-125	79.0	
27 Al	1	45	4934.00	ppb	4.16	9.79	5000	75-125	98.5	
39 K	1	45	5937.00	ppb	3.46	542.20	5000	75-125	107.9	
44 Ca	2	45	166600.00	ppb	0.44	168600.00	5000	75-125	-40.0	Fail
47 Ti	1	45	197.50	ppb	5.25	0.22	200	75-125	98.6	
51 V	1	45	194.90	ppb	3.01	1.39	200	75-125	96.8	
52 Cr	1	45	195.50	ppb	3.21	0.09	200	75-125	97.7	
55 Mn	1	45	674.90	ppb	3.07	512.40	200	75-125	81.2	
56 Fe	1	72	4878.00	ppb	2.81	12.31	5000	75-125	97.3	
59 Co	1	72	200.70	ppb	2.47	2.56	200	75-125	99.1	
60 Ni	1	72	196.00	ppb	2.70	3.07	200	75-125	96.5	
63 Cu	1	72	190.90	ppb	1.97	1.07	200	75-125	94.9	
66 Zn	1	72	193.30	ppb	1.93	1.70	200	75-125	95.8	
75 As	1	72	203.90	ppb	2.52	1.50	200	75-125	101.2	
78 Se	1	72	197.60	ppb	4.77	0.38	200	75-125	98.6	
88 Sr	2	115	879.30	ppb	1.05	699.90	200	75-125	89.7	
95 Mo	2	115	186.30	ppb	1.18	1.17	200	75-125	92.6	
107 Ag	2	115	183.80	ppb	0.59	0.05	200	75-125	91.9	
111 Cd	2	115	192.70	ppb	1.33	0.08	200	75-125	96.3	
118 Sn	2	115	207.00	ppb	1.38	-0.47	200	75-125	103.7	
121 Sb	2	115	177.50	ppb	0.74	0.22	200	75-125	88.6	
137 Ba	2	115	456.50	ppb	1.24	267.20	200	75-125	94.6	
205 Tl	2	209	208.20	ppb	1.46	0.15	200	75-125	104.0	
208 Pb	2	209	205.50	ppb	1.55	0.21	200	75-125	102.6	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6 Li	2	RHig		2176.96	8.86	4259.45	51.1	70 -	120	ISFail
45 Sc	1			156181.73	2.40	152280.61	102.6	70 -	120	
45 Sc	2			4751949.00	0.45	5033455.00	94.4	70 -	120	
72 Ge	1			93143.99	1.79	93230.46	99.9	70 -	120	
115 In	2			5276914.00	1.65	5857332.00	90.1	70 -	120	
209 Bi	2			4352886.00	1.77	5068454.00	85.9	70 -	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\042_MS.D\042_MS.D#

Date Acquired:	Aug 1 2014 04:58 pm	Sample Name:	**1407346-02B MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS 6020A_DW
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	-881200.00	ppb	0.87	2156.66	200	80-120	######	Fail
9	Be	2	45	209.50	ppb	1.55	0.10	200	80-120	104.7	
11	B	2	45	347.10	ppb	1.18	131.40	200	80-120	107.9	
23	Na	1	45	134600.00	ppb	1.80	########	5000	80-120	34.0	Fail
24	Mg	1	45	32000.00	ppb	2.31	27620.00	5000	80-120	87.6	
27	Al	1	45	4997.00	ppb	2.88	9.79	5000	80-120	99.7	
39	K	1	45	5704.00	ppb	2.88	542.20	5000	80-120	103.2	
44	Ca	2	45	170200.00	ppb	1.08	########	5000	80-120	32.0	Fail
47	Ti	1	45	215.00	ppb	3.81	0.22	200	80-120	107.4	
51	V	1	45	208.30	ppb	2.45	1.39	200	80-120	103.5	
52	Cr	1	45	204.40	ppb	2.88	0.09	200	80-120	102.2	
55	Mn	1	45	704.00	ppb	3.02	512.40	200	80-120	95.8	
56	Fe	1	72	5069.00	ppb	2.77	12.31	5000	80-120	101.1	
59	Co	1	72	208.30	ppb	2.73	2.56	200	80-120	102.9	
60	Ni	1	72	207.20	ppb	2.32	3.07	200	80-120	102.1	
63	Cu	1	72	204.10	ppb	2.74	1.07	200	80-120	101.5	
66	Zn	1	72	205.10	ppb	3.22	1.70	200	80-120	101.7	
75	As	1	72	216.20	ppb	3.04	1.50	200	80-120	107.4	
78	Se	1	72	212.80	ppb	4.42	0.38	200	80-120	106.2	
88	Sr	2	115	907.50	ppb	1.03	699.90	200	80-120	103.8	
95	Mo	2	115	206.00	ppb	1.25	1.17	200	80-120	102.4	
107	Ag	2	115	194.70	ppb	2.07	0.05	200	80-120	97.3	
111	Cd	2	115	203.60	ppb	1.44	0.08	200	80-120	101.8	
118	Sn	2	115	216.50	ppb	1.72	-0.47	200	80-120	108.5	
121	Sb	2	115	202.20	ppb	1.79	0.22	200	80-120	101.0	
137	Ba	2	115	474.60	ppb	1.19	267.20	200	80-120	103.7	
205	Tl	2	209	222.70	ppb	1.49	0.15	200	80-120	111.3	
208	Pb	2	209	215.60	ppb	1.59	0.21	200	80-120	107.7	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	2156.66	8.44	4259.45	50.6	70 -	120	ISFail
45	Sc	1		156006.95	1.94	152280.61	102.4	70 -	120	
45	Sc	2		4830509.50	1.39	5033455.00	96.0	70 -	120	
72	Ge	1		92718.75	1.90	93230.46	99.5	70 -	120	
115	In	2		5353532.00	1.72	5857332.00	91.4	70 -	120	
209	Bi	2		4379064.00	1.58	5068454.00	86.4	70 -	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\043_MS.D\043_MS.D#

Date Acquired:	Aug 1 2014 05:04 pm	Sample Name:	**1407346-02B MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD 6020A_DW
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	-873700.00	ppb	0.10	2187.30	200	80-120	######	Fail
9	Be	2	45	208.80	ppb	0.29	0.10	200	80-120	104.4	
11	B	2	45	347.20	ppb	0.25	131.40	200	80-120	107.9	
23	Na	1	45	134900.00	ppb	1.93	########	5000	80-120	40.0	Fail
24	Mg	1	45	32020.00	ppb	1.67	27620.00	5000	80-120	88.0	
27	Al	1	45	5050.00	ppb	3.76	9.79	5000	80-120	100.8	
39	K	1	45	5716.00	ppb	2.85	542.20	5000	80-120	103.5	
44	Ca	2	45	170000.00	ppb	0.49	########	5000	80-120	28.0	Fail
47	Ti	1	45	211.90	ppb	3.61	0.22	200	80-120	105.8	
51	V	1	45	209.50	ppb	3.22	1.39	200	80-120	104.1	
52	Cr	1	45	205.50	ppb	3.15	0.09	200	80-120	102.7	
55	Mn	1	45	709.90	ppb	3.23	512.40	200	80-120	98.7	
56	Fe	1	72	5167.00	ppb	3.19	12.31	5000	80-120	103.1	
59	Co	1	72	209.60	ppb	2.23	2.56	200	80-120	103.5	
60	Ni	1	72	208.30	ppb	1.74	3.07	200	80-120	102.6	
63	Cu	1	72	204.50	ppb	1.93	1.07	200	80-120	101.7	
66	Zn	1	72	201.90	ppb	1.83	1.70	200	80-120	100.1	
75	As	1	72	216.00	ppb	1.87	1.50	200	80-120	107.3	
78	Se	1	72	212.60	ppb	3.35	0.38	200	80-120	106.1	
88	Sr	2	115	904.70	ppb	1.26	699.90	200	80-120	102.4	
95	Mo	2	115	205.50	ppb	1.13	1.17	200	80-120	102.2	
107	Ag	2	115	193.80	ppb	0.63	0.05	200	80-120	96.9	
111	Cd	2	115	202.30	ppb	0.38	0.08	200	80-120	101.1	
118	Sn	2	115	215.30	ppb	0.97	-0.47	200	80-120	107.9	
121	Sb	2	115	200.40	ppb	0.78	0.22	200	80-120	100.1	
137	Ba	2	115	474.70	ppb	0.42	267.20	200	80-120	103.7	
205	Tl	2	209	223.30	ppb	0.93	0.15	200	80-120	111.6	
208	Pb	2	209	215.80	ppb	1.70	0.21	200	80-120	107.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	2187.30	3.79	4259.45	51.4	70 -	120	ISFail
45	Sc	1	154584.11	1.87	152280.61	101.5	70 -	120	
45	Sc	2	4902296.50	0.68	5033455.00	97.4	70 -	120	
72	Ge	1	92313.07	1.42	93230.46	99.0	70 -	120	
115	In	2	5511776.00	1.25	5857332.00	94.1	70 -	120	
209	Bi	2	4465520.50	1.20	5068454.00	88.1	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\046CCV1.D\046CCV1.D#

Date Acquired:	Aug 1 2014 05:23 pm	Sample Name:	**CCV1-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	5666.00	ppb	6.66	200.00	90 -	110	2833.0	Fail
9	Be	2	45	200.60	ppb	0.90	200.00	90 -	110	100.3	
11	B	2	45	212.30	ppb	0.92	200.00	90 -	110	106.2	
23	Na	1	45	4998.00	ppb	1.84	5000.00	90 -	110	100.0	
24	Mg	1	45	4797.00	ppb	2.30	5000.00	90 -	110	95.9	
27	Al	1	45	4864.00	ppb	2.86	5000.00	90 -	110	97.3	
39	K	1	45	4997.00	ppb	2.33	5000.00	90 -	110	99.9	
44	Ca	2	45	4867.00	ppb	0.82	5000.00	90 -	110	97.3	
47	Ti	1	45	201.70	ppb	2.52	200.00	90 -	110	100.9	
51	V	1	45	194.20	ppb	2.94	200.00	90 -	110	97.1	
52	Cr	1	45	195.50	ppb	2.97	200.00	90 -	110	97.8	
55	Mn	1	45	201.90	ppb	2.72	200.00	90 -	110	101.0	
56	Fe	1	72	4790.00	ppb	2.40	5000.00	90 -	110	95.8	
59	Co	1	72	200.70	ppb	1.96	200.00	90 -	110	100.4	
60	Ni	1	72	200.50	ppb	2.40	200.00	90 -	110	100.3	
63	Cu	1	72	200.40	ppb	1.71	200.00	90 -	110	100.2	
66	Zn	1	72	198.90	ppb	1.93	200.00	90 -	110	99.5	
75	As	1	72	202.30	ppb	2.88	200.00	90 -	110	101.2	
78	Se	1	72	197.40	ppb	3.71	200.00	90 -	110	98.7	
88	Sr	2	115	206.40	ppb	1.76	200.00	90 -	110	103.2	
95	Mo	2	115	190.10	ppb	1.43	200.00	90 -	110	95.1	
107	Ag	2	115	194.30	ppb	1.09	200.00	90 -	110	97.2	
111	Cd	2	115	195.70	ppb	1.18	200.00	90 -	110	97.9	
118	Sn	2	115	200.90	ppb	0.75	200.00	90 -	110	100.5	
121	Sb	2	115	187.50	ppb	1.54	200.00	90 -	110	93.8	
137	Ba	2	115	198.80	ppb	1.16	200.00	90 -	110	99.4	
205	Tl	2	209	209.60	ppb	1.90	200.00	90 -	110	104.8	
208	Pb	2	209	203.50	ppb	1.44	200.00	90 -	110	101.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	4048.64	2.87	4259.45	95.1	70 -	120		
45	Sc	1	166438.33	2.11	152280.61	109.3	70 -	120		
45	Sc	2	5034884.50	0.18	5033455.00	100.0	70 -	120		
72	Ge	1	100092.62	2.24	93230.46	107.4	70 -	120		
115	In	2	5716843.00	0.28	5857332.00	97.6	70 -	120		
209	Bi	2	4773168.50	1.68	5068454.00	94.2	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\049LCVL.D\049LCVL.D#

Date Acquired:	Aug 1 2014 05:41 pm	Sample Name:	**LCVL1-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	6912.00	ppb	2.56	5.00	70 -	130	######	Fail
9	Be	2	45	1.24	ppb	4.71	1.00	70 -	130	124.4	
11	B	2	45	26.36	ppb	1.26	20.00	70 -	130	131.8	Fail
23	Na	1	45	125.20	ppb	1.82	100.00	70 -	130	125.2	
24	Mg	1	45	111.20	ppb	3.45	100.00	70 -	130	111.2	
27	Al	1	45	115.50	ppb	1.52	100.00	70 -	130	115.5	
39	K	1	45	105.80	ppb	0.92	100.00	70 -	130	105.8	
44	Ca	2	45	24.57	ppb	1.64	100.00	70 -	130	24.6	Fail
47	Ti	1	45	5.42	ppb	4.32	5.00	70 -	130	108.5	
51	V	1	45	1.17	ppb	4.14	1.00	70 -	130	116.9	
52	Cr	1	45	5.82	ppb	2.58	5.00	70 -	130	116.4	
55	Mn	1	45	5.89	ppb	1.39	5.00	70 -	130	117.7	
56	Fe	1	72	109.00	ppb	2.76	100.00	70 -	130	109.0	
59	Co	1	72	5.73	ppb	2.48	5.00	70 -	130	114.5	
60	Ni	1	72	5.56	ppb	1.18	5.00	70 -	130	111.1	
63	Cu	1	72	5.42	ppb	1.70	5.00	70 -	130	108.4	
66	Zn	1	72	4.69	ppb	2.09	5.00	70 -	130	93.8	
75	As	1	72	5.83	ppb	2.09	5.00	70 -	130	116.5	
78	Se	1	72	5.85	ppb	7.07	5.00	70 -	130	117.0	
88	Sr	2	115	5.87	ppb	1.48	5.00	70 -	130	117.4	
95	Mo	2	115	5.33	ppb	1.26	5.00	70 -	130	106.6	
107	Ag	2	115	2.20	ppb	2.81	2.00	70 -	130	109.9	
111	Cd	2	115	1.23	ppb	7.11	1.00	70 -	130	122.9	
118	Sn	2	115	5.20	ppb	1.68	5.00	70 -	130	103.9	
121	Sb	2	115	2.28	ppb	2.10	2.00	70 -	130	114.2	
137	Ba	2	115	5.50	ppb	2.73	5.00	70 -	130	110.1	
205	Tl	2	209	1.23	ppb	1.45	1.00	70 -	130	123.0	
208	Pb	2	209	1.21	ppb	1.90	1.00	70 -	130	120.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	3954.16	2.50	4259.45	92.8	70 -	120	
45	Sc	1	155955.61	2.74	152280.61	102.4	70 -	120	
45	Sc	2	4862557.50	0.50	5033455.00	96.6	70 -	120	
72	Ge	1	95808.49	1.60	93230.46	102.8	70 -	120	
115	In	2	5572681.00	1.34	5857332.00	95.1	70 -	120	
209	Bi	2	4765400.00	1.50	5068454.00	94.0	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\050_CCB.D\050_CCB.D#

Date Acquired:	Aug 1 2014 05:47 pm	Sample Name:	**CCB1-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	7714.000	ppb	1.34	2.00	2.00	Failsoil
9	Be	2	45	0.042	ppb	13.21	0.10	0.30	
11	B	2	45	3.967	ppb	1.45	10.00	10.00	
23	Na	1	45	8.328	ppb	2.03	50.00	#####	
24	Mg	1	45	0.694	ppb	10.10	50.00	#####	
27	Al	1	45	-0.638	ppb	11.66	50.00	10.00	
39	K	1	45	0.313	ppb	4.80	50.00	#####	
44	Ca	2	45	-91.130	ppb	2.65	50.00	#####	
47	Ti	1	45	0.081	ppb	33.32	4.00	3.00	
51	V	1	45	0.014	ppb	6.36	4.00	3.00	
52	Cr	1	45	-0.024	ppb	0.11	2.00	2.00	
55	Mn	1	45	0.115	ppb	10.63	2.00	3.00	
56	Fe	1	72	1.020	ppb	4.42	50.00	50.00	
59	Co	1	72	0.057	ppb	6.29	2.00	3.00	
60	Ni	1	72	-0.031	ppb	5.16	2.00	3.00	
63	Cu	1	72	-0.230	ppb	2.20	2.00	2.00	
66	Zn	1	72	-0.982	ppb	0.93	4.00	2.00	
75	As	1	72	0.171	ppb	2.01	2.00	2.00	
78	Se	1	72	0.317	ppb	12.54	0.60	2.00	
88	Sr	2	115	0.084	ppb	4.65	4.00	3.00	
95	Mo	2	115	0.277	ppb	2.98	2.00	2.00	
107	Ag	2	115	0.030	ppb	23.18	0.40	1.00	
111	Cd	2	115	0.015	ppb	44.14	0.40	0.30	
118	Sn	2	115	-0.584	ppb	5.06	4.00	3.00	
121	Sb	2	115	0.118	ppb	5.92	2.00	0.80	
137	Ba	2	115	0.009	ppb	1.73	2.00	3.00	
205	Tl	2	209	0.072	ppb	11.48	2.00	0.50	
208	Pb	2	209	0.043	ppb	9.48	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	4001.69	0.18	4259.45	93.9	70 - 120	
45	Sc	1	160928.84	2.47	152280.61	105.7	70 - 120	
45	Sc	2	4951379.00	0.94	5033455.00	98.4	70 - 120	
72	Ge	1	98332.93	2.99	93230.46	105.5	70 - 120	
115	In	2	5616984.50	2.03	5857332.00	95.9	70 - 120	
209	Bi	2	4767823.50	2.04	5068454.00	94.1	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\051__PB.D\051__PB.D#

Date Acquired:	Aug 1 2014 05:53 pm	Sample Name:	**MB-64981**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLK6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.	RSD(%)	MDL	RL	Flag
7	Li	2	45	8862.000 ppb	1.76	2.0	5.00	Fail
9	Be	2	45	0.021 ppb	19.52	0.3	0.80	
11	B	2	45	1.709 ppb	2.82	10.0	30.00	
23	Na	1	45	5.377 ppb	2.50	100.0	#####	
24	Mg	1	45	4.999 ppb	6.47	100.0	#####	
27	Al	1	45	-2.159 ppb	4.77	10.0	30.00	
39	K	1	45	-3.650 ppb	3.11	100.0	#####	
44	Ca	2	45	-87.950 ppb	0.52	100.0	#####	
47	Ti	1	45	0.012 ppb	0.00	3.0	10.00	
51	V	1	45	0.003 ppb	5.84	3.0	10.00	
52	Cr	1	45	-0.060 ppb	5.51	2.0	5.00	
55	Mn	1	45	0.203 ppb	9.53	3.0	10.00	
56	Fe	1	72	1.280 ppb	1.64	50.0	#####	
59	Co	1	72	0.035 ppb	21.88	3.0	10.00	
60	Ni	1	72	-0.094 ppb	9.40	3.0	10.00	
63	Cu	1	72	-0.257 ppb	3.76	2.0	10.00	
66	Zn	1	72	0.817 ppb	7.47	2.0	5.00	
75	As	1	72	0.100 ppb	3.62	2.0	5.00	
78	Se	1	72	0.275 ppb	13.64	2.0	5.00	
88	Sr	2	115	0.050 ppb	8.35	3.0	10.00	
95	Mo	2	115	0.169 ppb	7.60	2.0	5.00	
107	Ag	2	115	0.025 ppb	18.23	1.0	2.00	
111	Cd	2	115	0.012 ppb	51.40	0.3	1.00	
118	Sn	2	115	-0.659 ppb	0.81	3.0	10.00	
121	Sb	2	115	0.082 ppb	13.38	0.8	2.50	
137	Ba	2	115	-0.011 ppb	18.42	3.0	10.00	
205	Tl	2	209	0.038 ppb	21.09	0.5	1.50	
208	Pb	2	209	0.026 ppb	12.10	0.3	1.00	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	4017.69	6.17	4259.45	94.3	70 - 120	
45	Sc	1		164469.11	2.10	152280.61	108.0	70 - 120	
45	Sc	2		5011920.50	1.31	5033455.00	99.6	70 - 120	
72	Ge	1		100009.41	2.14	93230.46	107.3	70 - 120	
115	In	2		5761585.00	0.75	5857332.00	98.4	70 - 120	
209	Bi	2		4931857.00	0.63	5068454.00	97.3	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\053_LCS.D\053_LCS.D#

Date Acquired:	Aug 1 2014 06:06 pm	Sample Name:	**LCS-64981**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8214.00	ppb	2.73	200.00	80 -	120	4107.0	Fail
9	Be	2	45	206.30	ppb	0.91	200.00	80 -	120	103.2	
11	B	2	45	209.60	ppb	1.68	200.00	80 -	120	104.8	
23	Na	1	45	5487.00	ppb	2.58	5000.00	80 -	120	109.7	
24	Mg	1	45	5101.00	ppb	2.72	5000.00	80 -	120	102.0	
27	Al	1	45	5090.00	ppb	2.75	5000.00	80 -	120	101.8	
39	K	1	45	5226.00	ppb	3.46	5000.00	80 -	120	104.5	
44	Ca	2	45	5240.00	ppb	0.47	5000.00	80 -	120	104.8	
47	Ti	1	45	213.90	ppb	3.50	200.00	80 -	120	107.0	
51	V	1	45	206.10	ppb	2.85	200.00	80 -	120	103.1	
52	Cr	1	45	209.10	ppb	3.02	200.00	80 -	120	104.6	
55	Mn	1	45	214.10	ppb	2.99	200.00	80 -	120	107.1	
56	Fe	1	72	5141.00	ppb	2.72	5000.00	80 -	120	102.8	
59	Co	1	72	214.10	ppb	2.03	200.00	80 -	120	107.1	
60	Ni	1	72	214.70	ppb	2.50	200.00	80 -	120	107.4	
63	Cu	1	72	214.30	ppb	2.27	200.00	80 -	120	107.2	
66	Zn	1	72	212.10	ppb	2.46	200.00	80 -	120	106.1	
75	As	1	72	212.00	ppb	2.39	200.00	80 -	120	106.0	
78	Se	1	72	210.40	ppb	4.64	200.00	80 -	120	105.2	
88	Sr	2	115	218.70	ppb	1.63	200.00	80 -	120	109.4	
95	Mo	2	115	197.90	ppb	1.69	200.00	80 -	120	99.0	
107	Ag	2	115	200.60	ppb	0.81	200.00	80 -	120	100.3	
111	Cd	2	115	207.50	ppb	1.86	200.00	80 -	120	103.8	
118	Sn	2	115	212.20	ppb	0.84	200.00	80 -	120	106.1	
121	Sb	2	115	197.20	ppb	1.50	200.00	80 -	120	98.6	
137	Ba	2	115	206.40	ppb	1.27	200.00	80 -	120	103.2	
205	Tl	2	209	213.70	ppb	1.15	200.00	80 -	120	106.9	
208	Pb	2	209	211.90	ppb	1.21	200.00	80 -	120	106.0	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigh	3885.95	5.73	4259.45	91.2	70 -	120	
45	Sc	1		159295.80	2.26	152280.61	104.6	70 -	120	
45	Sc	2		4967903.00	1.05	5033455.00	98.7	70 -	120	
72	Ge	1		95752.97	1.94	93230.46	102.7	70 -	120	
115	In	2		5610613.50	1.42	5857332.00	95.8	70 -	120	
209	Bi	2		4696618.00	1.99	5068454.00	92.7	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\054_LCS.D\054_LCS.D#

Date Acquired:	Aug 1 2014 06:12 pm	Sample Name:	**LCSD-64981**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSD6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8617.00	ppb	3.04	200.00	80 -	120	4308.5	Fail
9	Be	2	45	201.20	ppb	1.39	200.00	80 -	120	100.6	
11	B	2	45	206.80	ppb	0.60	200.00	80 -	120	103.4	
23	Na	1	45	5182.00	ppb	2.84	5000.00	80 -	120	103.6	
24	Mg	1	45	4945.00	ppb	2.63	5000.00	80 -	120	98.9	
27	Al	1	45	4995.00	ppb	4.17	5000.00	80 -	120	99.9	
39	K	1	45	5099.00	ppb	3.86	5000.00	80 -	120	102.0	
44	Ca	2	45	4946.00	ppb	0.75	5000.00	80 -	120	98.9	
47	Ti	1	45	207.10	ppb	1.00	200.00	80 -	120	103.6	
51	V	1	45	201.00	ppb	2.94	200.00	80 -	120	100.5	
52	Cr	1	45	203.30	ppb	3.61	200.00	80 -	120	101.7	
55	Mn	1	45	207.20	ppb	3.46	200.00	80 -	120	103.6	
56	Fe	1	72	4939.00	ppb	3.12	5000.00	80 -	120	98.8	
59	Co	1	72	206.70	ppb	2.27	200.00	80 -	120	103.4	
60	Ni	1	72	207.00	ppb	1.85	200.00	80 -	120	103.5	
63	Cu	1	72	205.70	ppb	2.00	200.00	80 -	120	102.9	
66	Zn	1	72	205.50	ppb	2.80	200.00	80 -	120	102.8	
75	As	1	72	206.30	ppb	2.88	200.00	80 -	120	103.2	
78	Se	1	72	203.30	ppb	2.88	200.00	80 -	120	101.7	
88	Sr	2	115	210.40	ppb	0.95	200.00	80 -	120	105.2	
95	Mo	2	115	192.40	ppb	1.10	200.00	80 -	120	96.2	
107	Ag	2	115	195.00	ppb	1.07	200.00	80 -	120	97.5	
111	Cd	2	115	200.60	ppb	1.45	200.00	80 -	120	100.3	
118	Sn	2	115	205.90	ppb	1.10	200.00	80 -	120	103.0	
121	Sb	2	115	194.40	ppb	1.47	200.00	80 -	120	97.2	
137	Ba	2	115	201.30	ppb	1.23	200.00	80 -	120	100.7	
205	Tl	2	209	206.20	ppb	1.54	200.00	80 -	120	103.1	
208	Pb	2	209	203.20	ppb	1.40	200.00	80 -	120	101.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	3749.46	2.04	4259.45	88.0	70 -	120	
45	Sc	1	158550.30	2.51	152280.61	104.1	70 -	120	
45	Sc	2	4903174.50	0.98	5033455.00	97.4	70 -	120	
72	Ge	1	96472.26	1.92	93230.46	103.5	70 -	120	
115	In	2	5542211.00	0.20	5857332.00	94.6	70 -	120	
209	Bi	2	4693001.00	0.82	5068454.00	92.6	70 -	120	

DT QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\057DT1.D\057DT1.D#

Date Acquired:	Aug 1 2014 06:30 pm	Sample Name:	**1407292-07C SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD 6020A_W
Operator:	SW	Bench Diln:	5.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	-41260.00	ppb	3.46	3893.67	90 - 110	######	
9	Be	2	45	0.08	ppb	3.70	0.10	90 - 110	401.8	
11	B	2	45	13.90	ppb	0.65	59.51	90 - 110	116.8	
23	~~Na~~	1	45	8535.00	ppb	2.13	40540.00	90 - 110	105.3	GOOD
24	Mg	1	45	1023.00	ppb	3.21	5097.00	90 - 110	100.4	GOOD
27	Al	1	45	9.35	ppb	0.63	40.56	90 - 110	115.3	
39	K	1	45	141.00	ppb	2.01	723.20	90 - 110	97.5	GOOD
44	Ca	2	45	4588.00	ppb	0.79	23280.00	90 - 110	98.5	GOOD
47	Ti	1	45	0.35	ppb	37.80	0.75	90 - 110	232.8	
51	V	1	45	0.60	ppb	6.87	2.76	90 - 110	108.4	GOOD
52	Cr	1	45	0.21	ppb	4.85	1.05	90 - 110	99.7	GOOD
55	Mn	1	45	0.57	ppb	13.18	3.01	90 - 110	94.1	GOOD
56	Fe	1	72	5.71	ppb	4.02	27.19	90 - 110	105.0	GOOD
59	Co	1	72	0.07	ppb	11.66	0.14	90 - 110	257.4	
60	Ni	1	72	0.00	ppb	3.67	0.17	90 - 110	0.7	
63	Cu	1	72	-0.18	ppb	11.45	0.34	90 - 110	-257.3	
66	Zn	1	72	-0.71	ppb	12.20	0.06	90 - 110	######	
75	As	1	72	0.41	ppb	6.74	1.57	90 - 110	129.3	
78	Se	1	72	0.29	ppb	13.42	0.84	90 - 110	173.6	
88	Sr	2	115	18.72	ppb	1.76	95.59	90 - 110	97.9	GOOD
95	Mo	2	115	0.34	ppb	6.45	0.93	90 - 110	181.7	
107	Ag	2	115	0.05	ppb	16.96	0.07	90 - 110	393.0	
111	Cd	2	115	0.07	ppb	17.52	0.08	90 - 110	462.9	
118	Sn	2	115	-0.55	ppb	5.15	-0.30	90 - 110	929.5	
121	Sb	2	115	0.10	ppb	3.61	0.17	90 - 110	306.9	
137	Ba	2	115	34.63	ppb	1.53	175.80	90 - 110	98.5	GOOD
205	Tl	2	209	0.11	ppb	12.87	0.16	90 - 110	334.8	
208	Pb	2	209	0.08	ppb	10.86	0.14	90 - 110	281.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	3893.67	2.64	4259.45	91.4	70 -	120	
45	Sc	1	158722.53	2.28	152280.61	104.2	70 -	120	
45	Sc	2	4948301.50	0.39	5033455.00	98.3	70 -	120	
72	Ge	1	97252.99	1.50	93230.46	104.3	70 -	120	
115	In	2	5773187.50	1.20	5857332.00	98.6	70 -	120	
209	Bi	2	4823585.50	1.19	5068454.00	95.2	70 -	120	

PDS QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\065_PDS.D\065_PDS.D#

Date Acquired:	Aug 1 2014 07:17 pm	Sample Name:	**1407292-07C PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	-232500.00	ppb	1.89	3160.44	200	75-125	######	Fail
9	Be	2	45	197.40	ppb	0.73	0.10	200	75-125	98.7	
11	B	2	45	259.30	ppb	0.80	59.51	200	75-125	99.9	
23	Na	1	45	43610.00	ppb	1.47	40540.00	5000	75-125	61.4	Fail
24	Mg	1	45	10170.00	ppb	2.70	5097.00	5000	75-125	101.5	
27	Al	1	45	5160.00	ppb	3.86	40.56	5000	75-125	102.4	
39	K	1	45	6317.00	ppb	2.29	723.20	5000	75-125	111.9	
44	Ca	2	45	27340.00	ppb	1.12	23280.00	5000	75-125	81.2	
47	Ti	1	45	209.40	ppb	4.77	0.75	200	75-125	104.3	
51	V	1	45	200.20	ppb	3.06	2.76	200	75-125	98.7	
52	Cr	1	45	202.10	ppb	3.30	1.05	200	75-125	100.5	
55	Mn	1	45	206.50	ppb	2.94	3.01	200	75-125	101.7	
56	Fe	1	72	4944.00	ppb	3.13	27.19	5000	75-125	98.3	
59	Co	1	72	200.80	ppb	1.83	0.14	200	75-125	100.3	
60	Ni	1	72	196.50	ppb	2.24	0.17	200	75-125	98.2	
63	Cu	1	72	197.30	ppb	1.80	0.34	200	75-125	98.5	
66	Zn	1	72	201.00	ppb	2.92	0.06	200	75-125	100.5	
75	As	1	72	209.50	ppb	2.47	1.57	200	75-125	104.0	
78	Se	1	72	197.60	ppb	3.87	0.84	200	75-125	98.4	
88	Sr	2	115	306.80	ppb	1.28	95.59	200	75-125	105.6	
95	Mo	2	115	186.30	ppb	1.57	0.93	200	75-125	92.7	
107	Ag	2	115	188.30	ppb	1.05	0.07	200	75-125	94.1	
111	Cd	2	115	200.80	ppb	1.11	0.08	200	75-125	100.4	
118	Sn	2	115	210.00	ppb	1.37	-0.30	200	75-125	105.1	
121	Sb	2	115	192.20	ppb	0.98	0.17	200	75-125	96.0	
137	Ba	2	115	370.60	ppb	1.27	175.80	200	75-125	97.4	
205	Tl	2	209	212.00	ppb	0.66	0.16	200	75-125	105.9	
208	Pb	2	209	206.90	ppb	1.55	0.14	200	75-125	103.4	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	RHig	3160.44	8.74	4259.45	74.2	70	-	120	
45	Sc	1		158597.52	2.15	152280.61	104.1	70	-	120	
45	Sc	2		4942824.00	0.97	5033455.00	98.2	70	-	120	
72	Ge	1		98041.84	1.49	93230.46	105.2	70	-	120	
115	In	2		5476988.50	1.15	5857332.00	93.5	70	-	120	
209	Bi	2		4464009.00	1.58	5068454.00	88.1	70	-	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\066_MS.D\066_MS.D#

Date Acquired:	Aug 1 2014 07:23 pm	Sample Name:	**1407292-07C MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	-218400.00	ppb	1.27	3193.65	200	80-120	######	Fail
9	Be	2	45	198.50	ppb	0.27	0.10	200	80-120	99.2	
11	B	2	45	265.20	ppb	0.80	59.51	200	80-120	102.8	
23	Na	1	45	43370.00	ppb	1.94	40540.00	5000	80-120	56.6	Fail
24	Mg	1	45	9736.00	ppb	2.87	5097.00	5000	80-120	92.8	
27	Al	1	45	5046.00	ppb	4.05	40.56	5000	80-120	100.1	
39	K	1	45	5904.00	ppb	2.71	723.20	5000	80-120	103.6	
44	Ca	2	45	27430.00	ppb	0.53	23280.00	5000	80-120	83.0	
47	Ti	1	45	208.80	ppb	2.89	0.75	200	80-120	104.0	
51	V	1	45	204.20	ppb	3.14	2.76	200	80-120	100.7	
52	Cr	1	45	201.50	ppb	2.84	1.05	200	80-120	100.2	
55	Mn	1	45	209.70	ppb	3.34	3.01	200	80-120	103.3	
56	Fe	1	72	4924.00	ppb	3.29	27.19	5000	80-120	97.9	
59	Co	1	72	201.10	ppb	2.53	0.14	200	80-120	100.5	
60	Ni	1	72	200.40	ppb	2.22	0.17	200	80-120	100.1	
63	Cu	1	72	199.40	ppb	2.03	0.34	200	80-120	99.5	
66	Zn	1	72	205.40	ppb	2.54	0.06	200	80-120	102.7	
75	As	1	72	219.40	ppb	2.63	1.57	200	80-120	108.9	
78	Se	1	72	203.40	ppb	3.97	0.84	200	80-120	101.3	
88	Sr	2	115	310.60	ppb	0.65	95.59	200	80-120	107.5	
95	Mo	2	115	199.40	ppb	0.88	0.93	200	80-120	99.2	
107	Ag	2	115	195.20	ppb	1.85	0.07	200	80-120	97.6	
111	Cd	2	115	202.70	ppb	1.52	0.08	200	80-120	101.3	
118	Sn	2	115	210.10	ppb	1.50	-0.30	200	80-120	105.2	
121	Sb	2	115	203.00	ppb	1.26	0.17	200	80-120	101.4	
137	Ba	2	115	378.00	ppb	1.88	175.80	200	80-120	101.1	
205	Tl	2	209	214.30	ppb	1.69	0.16	200	80-120	107.1	
208	Pb	2	209	207.50	ppb	1.37	0.14	200	80-120	103.7	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	RHig	3193.65	5.75	4259.45	75.0	70	-	120	
45	Sc	1		163825.45	2.96	152280.61	107.6	70	-	120	
45	Sc	2		4978154.50	1.06	5033455.00	98.9	70	-	120	
72	Ge	1		100128.40	2.17	93230.46	107.4	70	-	120	
115	In	2		5546572.50	0.66	5857332.00	94.7	70	-	120	
209	Bi	2		4556671.00	1.13	5068454.00	89.9	70	-	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\067_MS.D\067_MS.D#

Date Acquired:	Aug 1 2014 07:29 pm	Sample Name:	**1407292-07C MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	-212900.00	ppb	0.87	3216.95	200	80-120	######	Fail
9	Be	2	45	194.00	ppb	0.69	0.10	200	80-120	97.0	
11	B	2	45	259.50	ppb	0.63	59.51	200	80-120	100.0	
23	Na	1	45	42520.00	ppb	2.44	40540.00	5000	80-120	39.6	Fail
24	Mg	1	45	9553.00	ppb	3.46	5097.00	5000	80-120	89.1	
27	Al	1	45	4897.00	ppb	3.44	40.56	5000	80-120	97.1	
39	K	1	45	5785.00	ppb	2.42	723.20	5000	80-120	101.2	
44	Ca	2	45	26530.00	ppb	0.12	23280.00	5000	80-120	65.0	Fail
47	Ti	1	45	206.10	ppb	3.13	0.75	200	80-120	102.7	
51	V	1	45	199.80	ppb	2.89	2.76	200	80-120	98.5	
52	Cr	1	45	197.30	ppb	3.32	1.05	200	80-120	98.1	
55	Mn	1	45	205.90	ppb	3.05	3.01	200	80-120	101.4	
56	Fe	1	72	4806.00	ppb	2.99	27.19	5000	80-120	95.6	
59	Co	1	72	197.30	ppb	2.22	0.14	200	80-120	98.6	
60	Ni	1	72	197.60	ppb	2.44	0.17	200	80-120	98.7	
63	Cu	1	72	197.40	ppb	2.09	0.34	200	80-120	98.5	
66	Zn	1	72	201.30	ppb	2.12	0.06	200	80-120	100.6	
75	As	1	72	211.50	ppb	2.30	1.57	200	80-120	105.0	
78	Se	1	72	201.70	ppb	4.68	0.84	200	80-120	100.4	
88	Sr	2	115	302.10	ppb	1.21	95.59	200	80-120	103.3	
95	Mo	2	115	193.50	ppb	0.60	0.93	200	80-120	96.3	
107	Ag	2	115	190.60	ppb	1.32	0.07	200	80-120	95.3	
111	Cd	2	115	197.00	ppb	1.78	0.08	200	80-120	98.5	
118	Sn	2	115	206.50	ppb	2.26	-0.30	200	80-120	103.4	
121	Sb	2	115	195.30	ppb	1.52	0.17	200	80-120	97.6	
137	Ba	2	115	370.20	ppb	1.48	175.80	200	80-120	97.2	
205	Tl	2	209	209.90	ppb	0.87	0.16	200	80-120	104.9	
208	Pb	2	209	204.30	ppb	1.39	0.14	200	80-120	102.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3216.95	1.50	4259.45	75.5	70	-	120	
45	Sc	1	165234.42	2.49	152280.61	108.5	70	-	120	
45	Sc	2	5052615.50	0.87	5033455.00	100.4	70	-	120	
72	Ge	1	100632.72	1.19	93230.46	107.9	70	-	120	
115	In	2	5737896.50	1.86	5857332.00	98.0	70	-	120	
209	Bi	2	4700053.00	1.72	5068454.00	92.7	70	-	120	

CCV QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\068CCV1.D\068CCV1.D#

Date Acquired:	Aug 1 2014 07:35 pm	Sample Name:	**CCV2-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	5589.00	ppb	11.03	200.00	90 -	110	2794.5	Fail
9	Be	2	45	195.60	ppb	0.68	200.00	90 -	110	97.8	
11	B	2	45	209.30	ppb	1.19	200.00	90 -	110	104.7	
23	Na	1	45	5223.00	ppb	2.88	5000.00	90 -	110	104.5	
24	Mg	1	45	4892.00	ppb	2.44	5000.00	90 -	110	97.8	
27	Al	1	45	5002.00	ppb	3.63	5000.00	90 -	110	100.0	
39	K	1	45	5111.00	ppb	2.56	5000.00	90 -	110	102.2	
44	Ca	2	45	5074.00	ppb	1.15	5000.00	90 -	110	101.5	
47	Ti	1	45	204.50	ppb	2.73	200.00	90 -	110	102.3	
51	V	1	45	200.10	ppb	3.26	200.00	90 -	110	100.1	
52	Cr	1	45	201.30	ppb	2.83	200.00	90 -	110	100.7	
55	Mn	1	45	209.10	ppb	2.49	200.00	90 -	110	104.6	
56	Fe	1	72	4919.00	ppb	3.46	5000.00	90 -	110	98.4	
59	Co	1	72	206.20	ppb	2.41	200.00	90 -	110	103.1	
60	Ni	1	72	206.70	ppb	2.37	200.00	90 -	110	103.4	
63	Cu	1	72	206.50	ppb	2.38	200.00	90 -	110	103.3	
66	Zn	1	72	207.10	ppb	2.92	200.00	90 -	110	103.6	
75	As	1	72	212.80	ppb	2.86	200.00	90 -	110	106.4	
78	Se	1	72	206.90	ppb	2.74	200.00	90 -	110	103.5	
88	Sr	2	115	210.70	ppb	1.66	200.00	90 -	110	105.4	
95	Mo	2	115	193.00	ppb	1.79	200.00	90 -	110	96.5	
107	Ag	2	115	197.60	ppb	1.21	200.00	90 -	110	98.8	
111	Cd	2	115	200.20	ppb	1.66	200.00	90 -	110	100.1	
118	Sn	2	115	204.30	ppb	1.44	200.00	90 -	110	102.2	
121	Sb	2	115	194.60	ppb	1.67	200.00	90 -	110	97.3	
137	Ba	2	115	201.10	ppb	1.74	200.00	90 -	110	100.6	
205	Tl	2	209	213.90	ppb	2.34	200.00	90 -	110	107.0	
208	Pb	2	209	208.10	ppb	2.08	200.00	90 -	110	104.1	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigh	3662.42	5.80	4259.45	86.0	70 -	120	
45	Sc	1		165776.84	2.27	152280.61	108.9	70 -	120	
45	Sc	2		5171858.50	0.43	5033455.00	102.7	70 -	120	
72	Ge	1		100484.41	2.44	93230.46	107.8	70 -	120	
115	In	2		5895580.50	1.39	5857332.00	100.7	70 -	120	
209	Bi	2		4818119.00	1.76	5068454.00	95.1	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\072LCVL.D\072LCVL.D#

Date Acquired:	Aug 1 2014 08:00 pm	Sample Name:	**LCVL2-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	7309.00	ppb	8.14	5.00	70 -	130	######	Fail
9	Be	2	45	1.15	ppb	3.32	1.00	70 -	130	114.9	
11	B	2	45	25.96	ppb	2.39	20.00	70 -	130	129.8	
23	Na	1	45	152.60	ppb	2.71	100.00	70 -	130	152.6	Fail
24	Mg	1	45	107.90	ppb	4.52	100.00	70 -	130	107.9	
27	Al	1	45	109.30	ppb	2.18	100.00	70 -	130	109.3	
39	K	1	45	123.80	ppb	3.21	100.00	70 -	130	123.8	
44	Ca	2	45	14.49	ppb	2.30	100.00	70 -	130	14.5	Fail
47	Ti	1	45	5.88	ppb	14.94	5.00	70 -	130	117.5	
51	V	1	45	1.13	ppb	1.68	1.00	70 -	130	113.2	
52	Cr	1	45	5.56	ppb	2.44	5.00	70 -	130	111.2	
55	Mn	1	45	6.52	ppb	4.42	5.00	70 -	130	130.4	Fail
56	Fe	1	72	106.50	ppb	1.75	100.00	70 -	130	106.5	
59	Co	1	72	5.58	ppb	0.84	5.00	70 -	130	111.6	
60	Ni	1	72	5.55	ppb	1.99	5.00	70 -	130	110.9	
63	Cu	1	72	5.33	ppb	1.69	5.00	70 -	130	106.6	
66	Zn	1	72	4.76	ppb	3.13	5.00	70 -	130	95.2	
75	As	1	72	5.93	ppb	2.02	5.00	70 -	130	118.5	
78	Se	1	72	5.97	ppb	1.28	5.00	70 -	130	119.4	
88	Sr	2	115	5.87	ppb	1.50	5.00	70 -	130	117.5	
95	Mo	2	115	5.27	ppb	2.41	5.00	70 -	130	105.4	
107	Ag	2	115	2.12	ppb	4.61	2.00	70 -	130	105.8	
111	Cd	2	115	1.13	ppb	8.89	1.00	70 -	130	113.1	
118	Sn	2	115	5.04	ppb	2.23	5.00	70 -	130	100.8	
121	Sb	2	115	2.25	ppb	0.64	2.00	70 -	130	112.3	
137	Ba	2	115	5.58	ppb	3.87	5.00	70 -	130	111.7	
205	Tl	2	209	1.21	ppb	2.92	1.00	70 -	130	121.3	
208	Pb	2	209	1.15	ppb	3.41	1.00	70 -	130	114.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3775.74	1.91	4259.45	88.6	70 -	120		
45	Sc	1	165156.58	2.70	152280.61	108.5	70 -	120		
45	Sc	2	5015208.50	0.36	5033455.00	99.6	70 -	120		
72	Ge	1	100738.45	1.42	93230.46	108.1	70 -	120		
115	In	2	5700702.00	2.01	5857332.00	97.3	70 -	120		
209	Bi	2	4794756.00	1.08	5068454.00	94.6	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\075_CCB.D\075_CCB.D#

Date Acquired:	Aug 1 2014 08:18 pm	Sample Name:	**CCB2-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	8875.000	ppb	3.53	2.00	2.00	Failsoil
9	Be	2	45	0.037	ppb	1.90	0.10	0.30	
11	B	2	45	2.847	ppb	1.51	10.00	10.00	
23	Na	1	45	35.670	ppb	1.23	50.00	#####	
24	Mg	1	45	-0.438	ppb	13.42	50.00	#####	
27	Al	1	45	-1.680	ppb	4.25	50.00	10.00	
39	K	1	45	12.400	ppb	1.67	50.00	#####	
44	Ca	2	45	-96.220	ppb	3.73	50.00	#####	
47	Ti	1	45	-0.052	ppb	99.97	4.00	3.00	
51	V	1	45	0.025	ppb	3.66	4.00	3.00	
52	Cr	1	45	-0.046	ppb	4.81	2.00	2.00	
55	Mn	1	45	0.736	ppb	4.95	2.00	3.00	
56	Fe	1	72	0.541	ppb	4.23	50.00	50.00	
59	Co	1	72	0.016	ppb	4.92	2.00	3.00	
60	Ni	1	72	-0.103	ppb	3.43	2.00	3.00	
63	Cu	1	72	-0.238	ppb	4.00	2.00	2.00	
66	Zn	1	72	-0.920	ppb	3.39	4.00	2.00	
75	As	1	72	0.123	ppb	7.33	2.00	2.00	
78	Se	1	72	0.335	ppb	15.86	0.60	2.00	
88	Sr	2	115	0.114	ppb	11.67	4.00	3.00	
95	Mo	2	115	0.143	ppb	8.54	2.00	2.00	
107	Ag	2	115	0.019	ppb	26.59	0.40	1.00	
111	Cd	2	115	0.020	ppb	72.08	0.40	0.30	
118	Sn	2	115	-0.656	ppb	4.42	4.00	3.00	
121	Sb	2	115	0.060	ppb	0.00	2.00	0.80	
137	Ba	2	115	0.032	ppb	19.99	2.00	3.00	
205	Tl	2	209	0.044	ppb	15.85	2.00	0.50	
208	Pb	2	209	0.023	ppb	19.38	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3734.45	2.97	4259.45	87.7	70 - 120	
45	Sc	1	162542.38	2.72	152280.61	106.7	70 - 120	
45	Sc	2	5005303.50	0.65	5033455.00	99.4	70 - 120	
72	Ge	1	100742.79	1.47	93230.46	108.1	70 - 120	
115	In	2	5698379.00	0.59	5857332.00	97.3	70 - 120	
209	Bi	2	4798385.00	1.41	5068454.00	94.7	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\076__PB.D\076__PB.D#

Date Acquired:	Aug 1 2014 08:24 pm	Sample Name:	**MB-64976**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLK6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	8821.000	ppb	11.26	2.0	5.00	Fail
9	Be	2	45	0.020	ppb	11.80	0.3	0.80	
11	B	2	45	5.152	ppb	3.95	10.0	30.00	
23	Na	1	45	29.000	ppb	3.86	100.0	#####	
24	Mg	1	45	2.652	ppb	9.03	100.0	#####	
27	Al	1	45	11.110	ppb	3.12	10.0	30.00	J
39	K	1	45	16.680	ppb	1.71	100.0	#####	
44	Ca	2	45	-71.960	ppb	1.19	100.0	#####	
47	Ti	1	45	0.071	ppb	33.32	3.0	10.00	
51	V	1	45	-0.016	ppb	11.83	3.0	10.00	
52	Cr	1	45	-0.057	ppb	4.38	2.0	5.00	
55	Mn	1	45	0.702	ppb	10.18	3.0	10.00	
56	Fe	1	72	0.774	ppb	0.61	50.0	#####	
59	Co	1	72	0.005	ppb	9.58	3.0	10.00	
60	Ni	1	72	-0.094	ppb	4.92	3.0	10.00	
63	Cu	1	72	-0.279	ppb	9.72	2.0	10.00	
66	Zn	1	72	1.701	ppb	5.64	2.0	5.00	
75	As	1	72	0.117	ppb	3.41	2.0	5.00	
78	Se	1	72	0.287	ppb	16.76	2.0	5.00	
88	Sr	2	115	0.130	ppb	4.74	3.0	10.00	
95	Mo	2	115	0.127	ppb	5.81	2.0	5.00	
107	Ag	2	115	0.011	ppb	26.72	1.0	2.00	
111	Cd	2	115	0.014	ppb	65.97	0.3	1.00	
118	Sn	2	115	-0.692	ppb	2.03	3.0	10.00	
121	Sb	2	115	0.041	ppb	4.80	0.8	2.50	
137	Ba	2	115	0.067	ppb	2.11	3.0	10.00	
205	Tl	2	209	0.032	ppb	4.68	0.5	1.50	
208	Pb	2	209	0.021	ppb	15.33	0.3	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3735.58	2.89	4259.45	87.7	70 - 120	
45	Sc	1	169711.14	2.63	152280.61	111.4	70 - 120	
45	Sc	2	5065083.00	0.41	5033455.00	100.6	70 - 120	
72	Ge	1	103597.65	1.70	93230.46	111.1	70 - 120	
115	In	2	5796694.00	2.39	5857332.00	99.0	70 - 120	
209	Bi	2	4883676.00	1.53	5068454.00	96.4	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\077_LCS.D\077_LCS.D#

Date Acquired:	Aug 1 2014 08:30 pm	Sample Name:	**LCS-64976**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8169.00	ppb	2.83	200.00	80 -	120	4084.5	Fail
9	Be	2	45	200.40	ppb	0.79	200.00	80 -	120	100.2	
11	B	2	45	207.50	ppb	0.84	200.00	80 -	120	103.8	
23	Na	1	45	5186.00	ppb	2.41	5000.00	80 -	120	103.7	
24	Mg	1	45	5022.00	ppb	2.48	5000.00	80 -	120	100.4	
27	Al	1	45	5259.00	ppb	2.90	5000.00	80 -	120	105.2	
39	K	1	45	5339.00	ppb	2.21	5000.00	80 -	120	106.8	
44	Ca	2	45	5316.00	ppb	0.38	5000.00	80 -	120	106.3	
47	Ti	1	45	209.00	ppb	3.54	200.00	80 -	120	104.5	
51	V	1	45	203.70	ppb	1.95	200.00	80 -	120	101.9	
52	Cr	1	45	204.20	ppb	1.97	200.00	80 -	120	102.1	
55	Mn	1	45	214.60	ppb	1.47	200.00	80 -	120	107.3	
56	Fe	1	72	5029.00	ppb	2.69	5000.00	80 -	120	100.6	
59	Co	1	72	207.00	ppb	2.00	200.00	80 -	120	103.5	
60	Ni	1	72	206.80	ppb	1.15	200.00	80 -	120	103.4	
63	Cu	1	72	206.40	ppb	1.66	200.00	80 -	120	103.2	
66	Zn	1	72	212.60	ppb	2.30	200.00	80 -	120	106.3	
75	As	1	72	215.90	ppb	2.04	200.00	80 -	120	108.0	
78	Se	1	72	213.20	ppb	3.05	200.00	80 -	120	106.6	
88	Sr	2	115	219.50	ppb	0.38	200.00	80 -	120	109.8	
95	Mo	2	115	196.50	ppb	0.44	200.00	80 -	120	98.3	
107	Ag	2	115	200.40	ppb	1.08	200.00	80 -	120	100.2	
111	Cd	2	115	207.10	ppb	1.07	200.00	80 -	120	103.6	
118	Sn	2	115	211.80	ppb	1.17	200.00	80 -	120	105.9	
121	Sb	2	115	199.90	ppb	0.76	200.00	80 -	120	100.0	
137	Ba	2	115	208.10	ppb	1.15	200.00	80 -	120	104.1	
205	Tl	2	209	208.80	ppb	1.16	200.00	80 -	120	104.4	
208	Pb	2	209	210.30	ppb	0.82	200.00	80 -	120	105.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3761.95	2.29	4259.45	88.3	70 -	120		
45	Sc	1	168742.11	1.44	152280.61	110.8	70 -	120		
45	Sc	2	5080985.50	0.48	5033455.00	100.9	70 -	120		
72	Ge	1	102348.98	0.90	93230.46	109.8	70 -	120		
115	In	2	5852967.00	1.30	5857332.00	99.9	70 -	120		
209	Bi	2	4893831.50	2.05	5068454.00	96.6	70 -	120		

LCS QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\078_LCS.D\078_LCS.D#

Date Acquired:	Aug 1 2014 08:36 pm	Sample Name:	**LCSD-64976**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSD6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8487.00	ppb	8.49	200.00	80 -	120	4243.5	Fail
9	Be	2	45	193.70	ppb	0.49	200.00	80 -	120	96.9	
11	B	2	45	201.40	ppb	1.05	200.00	80 -	120	100.7	
23	Na	1	45	5063.00	ppb	2.37	5000.00	80 -	120	101.3	
24	Mg	1	45	4851.00	ppb	2.49	5000.00	80 -	120	97.0	
27	Al	1	45	4965.00	ppb	3.23	5000.00	80 -	120	99.3	
39	K	1	45	5099.00	ppb	2.07	5000.00	80 -	120	102.0	
44	Ca	2	45	4978.00	ppb	1.86	5000.00	80 -	120	99.6	
47	Ti	1	45	205.00	ppb	4.83	200.00	80 -	120	102.5	
51	V	1	45	198.50	ppb	2.20	200.00	80 -	120	99.3	
52	Cr	1	45	199.50	ppb	2.06	200.00	80 -	120	99.8	
55	Mn	1	45	207.50	ppb	2.04	200.00	80 -	120	103.8	
56	Fe	1	72	4936.00	ppb	2.27	5000.00	80 -	120	98.7	
59	Co	1	72	203.90	ppb	1.63	200.00	80 -	120	102.0	
60	Ni	1	72	203.00	ppb	1.77	200.00	80 -	120	101.5	
63	Cu	1	72	203.30	ppb	1.33	200.00	80 -	120	101.7	
66	Zn	1	72	205.60	ppb	1.69	200.00	80 -	120	102.8	
75	As	1	72	209.10	ppb	1.96	200.00	80 -	120	104.6	
78	Se	1	72	206.70	ppb	3.73	200.00	80 -	120	103.4	
88	Sr	2	115	211.60	ppb	0.74	200.00	80 -	120	105.8	
95	Mo	2	115	191.90	ppb	1.00	200.00	80 -	120	96.0	
107	Ag	2	115	193.40	ppb	1.54	200.00	80 -	120	96.7	
111	Cd	2	115	200.30	ppb	1.19	200.00	80 -	120	100.2	
118	Sn	2	115	204.10	ppb	0.91	200.00	80 -	120	102.1	
121	Sb	2	115	193.60	ppb	1.24	200.00	80 -	120	96.8	
137	Ba	2	115	201.30	ppb	1.45	200.00	80 -	120	100.7	
205	Tl	2	209	201.40	ppb	1.65	200.00	80 -	120	100.7	
208	Pb	2	209	202.90	ppb	1.54	200.00	80 -	120	101.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3776.84	1.83	4259.45	88.7	70 -	120		
45	Sc	1	165807.64	1.94	152280.61	108.9	70 -	120		
45	Sc	2	5133550.00	0.83	5033455.00	102.0	70 -	120		
72	Ge	1	100470.02	1.48	93230.46	107.8	70 -	120		
115	In	2	5862155.00	1.22	5857332.00	100.1	70 -	120		
209	Bi	2	4865148.00	1.78	5068454.00	96.0	70 -	120		

Sample QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\080AREF.D\080AREF.D#

Date Acquired:	Aug 1 2014 08:48 pm	Sample Name:	**1407278-03A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	-331500.000	ppb	#REF!	1.55	2000.00	ND
9	Be	2	45	0.092	ppb	#REF!	16.64	2000.00	ND
11	B	2	45	121.500	ppb	#REF!	1.19	2000.00	>RL
23	Na	1	45	7586.000	ppb	#REF!	1.90	25000.00	>RL
24	Mg	1	45	5872.000	ppb	#REF!	3.11	25000.00	>RL
27	Al	1	45	278.000	ppb	#REF!	4.36	10000.00	>RL
39	K	1	45	2484.000	ppb	#REF!	2.00	25000.00	>RL
44	Ca	2	45	132000.000	ppb	#REF!	1.51	25000.00	OUTCAL
47	Ti	1	45	3.919	ppb	#REF!	6.35	2000.00	ND
51	V	1	45	2.409	ppb	#REF!	4.68	2000.00	ND
52	Cr	1	45	0.480	ppb	#REF!	1.40	2000.00	ND
55	Mn	1	45	351.400	ppb	#REF!	2.57	2000.00	>RL
56	Fe	1	72	769.000	ppb	#REF!	2.74	10000.00	>RL
59	Co	1	72	1.330	ppb	#REF!	1.59	2000.00	ND
60	Ni	1	72	1.348	ppb	#REF!	7.05	2000.00	ND
63	Cu	1	72	6.109	ppb	#REF!	1.54	2000.00	J
66	Zn	1	72	5.996	ppb	#REF!	2.71	2000.00	J
75	As	1	72	7.784	ppb	#REF!	0.95	2000.00	>RL
78	Se	1	72	0.794	ppb	#REF!	9.50	2000.00	J
88	Sr	2	115	235.200	ppb	#REF!	1.07	2000.00	>RL
95	Mo	2	115	13.550	ppb	#REF!	2.04	2000.00	>RL
107	Ag	2	115	0.061	ppb	#REF!	30.48	500.00	ND
111	Cd	2	115	0.101	ppb	#REF!	11.35	2000.00	ND
118	Sn	2	115	-0.583	ppb	#REF!	12.92	2000.00	ND
121	Sb	2	115	218.400	ppb	#REF!	1.54	500.00	>RL
137	Ba	2	115	75.960	ppb	#REF!	2.27	2000.00	>RL
205	Tl	2	209	0.162	ppb	#REF!	19.18	2000.00	ND
208	Pb	2	209	1.613	ppb	#REF!	3.65	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2901.10	6.50	RHigh	4259.45	68.1	70 - 120	ISFail
45	Sc	1	165909.02	1.88		152280.61	108.9	70 - 120	
45	Sc	2	4957924.50	1.36		5033455.00	98.5	70 - 120	
72	Ge	1	100590.74	1.43		93230.46	107.9	70 - 120	
115	In	2	5740782.50	0.90		5857332.00	98.0	70 - 120	
209	Bi	2	4685532.00	0.86		5068454.00	92.4	70 - 120	

DT QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\081DT1.D\081DT1.D#

Date Acquired:	Aug 1 2014 08:54 pm	Sample Name:	**1407278-03A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD 6020A_W
Operator:	SW	Bench Diln:	5.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	-61160.00	ppb	1.09	3571.47	90 - 110	######	
9	Be	2	45	0.05	ppb	3.88	0.09	90 - 110	295.7	
11	B	2	45	27.97	ppb	1.80	121.50	90 - 110	115.1	
23	Na	1	45	1565.00	ppb	1.71	7586.00	90 - 110	103.2	GOOD
24	Mg	1	45	1236.00	ppb	1.80	5872.00	90 - 110	105.2	GOOD
27	Al	1	45	59.96	ppb	3.63	278.00	90 - 110	107.8	GOOD
39	K	1	45	513.20	ppb	2.37	2484.00	90 - 110	103.3	GOOD
44	Ca	2	45	27550.00	ppb	0.40	132000.00	90 - 110	104.4	GOOD
47	Ti	1	45	0.97	ppb	35.88	3.92	90 - 110	124.3	
51	V	1	45	0.57	ppb	3.77	2.41	90 - 110	117.7	
52	Cr	1	45	0.16	ppb	17.07	0.48	90 - 110	165.1	
55	Mn	1	45	74.84	ppb	2.29	351.40	90 - 110	106.5	GOOD
56	Fe	1	72	161.60	ppb	2.24	769.00	90 - 110	105.1	GOOD
59	Co	1	72	0.31	ppb	4.51	1.33	90 - 110	114.9	
60	Ni	1	72	0.28	ppb	5.53	1.35	90 - 110	102.2	GOOD
63	Cu	1	72	1.11	ppb	3.16	6.11	90 - 110	91.1	GOOD
66	Zn	1	72	0.32	ppb	5.01	6.00	90 - 110	27.1	
75	As	1	72	1.74	ppb	3.26	7.78	90 - 110	112.0	
78	Se	1	72	0.48	ppb	9.03	0.79	90 - 110	300.7	
88	Sr	2	115	47.18	ppb	1.04	235.20	90 - 110	100.3	GOOD
95	Mo	2	115	3.08	ppb	0.76	13.55	90 - 110	113.5	
107	Ag	2	115	0.04	ppb	24.26	0.06	90 - 110	292.8	
111	Cd	2	115	0.05	ppb	18.63	0.10	90 - 110	237.4	
118	Sn	2	115	-0.65	ppb	8.51	-0.58	90 - 110	560.0	
121	Sb	2	115	45.18	ppb	1.12	218.40	90 - 110	103.4	GOOD
137	Ba	2	115	15.91	ppb	2.38	75.96	90 - 110	104.7	GOOD
205	Tl	2	209	0.08	ppb	8.94	0.16	90 - 110	235.1	
208	Pb	2	209	0.36	ppb	2.82	1.61	90 - 110	111.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	3571.47	1.07	4259.45	83.8	70 -	120	
45	Sc	1	158019.06	2.58	152280.61	103.8	70 -	120	
45	Sc	2	4885741.50	0.72	5033455.00	97.1	70 -	120	
72	Ge	1	97469.28	1.49	93230.46	104.5	70 -	120	
115	In	2	5647314.00	1.15	5857332.00	96.4	70 -	120	
209	Bi	2	4748288.50	1.11	5068454.00	93.7	70 -	120	

PDS QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\091_PDS.D\091_PDS.D#

Date Acquired:	Aug 1 2014 09:55 pm	Sample Name:	**1407278-03A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	-312900.00	ppb	0.98	2534.72	200	75-125	######	Fail
9	Be	2	45	186.30	ppb	0.80	0.09	200	75-125	93.1	
11	B	2	45	307.90	ppb	0.50	121.50	200	75-125	93.2	
23	Na	1	45	12300.00	ppb	1.29	7586.00	5000	75-125	94.3	
24	Mg	1	45	10580.00	ppb	2.29	5872.00	5000	75-125	94.2	
27	Al	1	45	5354.00	ppb	3.46	278.00	5000	75-125	101.5	
39	K	1	45	7853.00	ppb	2.36	2484.00	5000	75-125	107.4	
44	Ca	2	45	125700.00	ppb	0.49	132000.00	5000	75-125	-126.0	Fail
47	Ti	1	45	208.20	ppb	2.88	3.92	200	75-125	102.1	
51	V	1	45	193.20	ppb	3.03	2.41	200	75-125	95.4	
52	Cr	1	45	193.80	ppb	3.07	0.48	200	75-125	96.7	
55	Mn	1	45	521.00	ppb	2.51	351.40	200	75-125	84.8	
56	Fe	1	72	5443.00	ppb	2.34	769.00	5000	75-125	93.5	
59	Co	1	72	193.30	ppb	1.86	1.33	200	75-125	96.0	
60	Ni	1	72	188.10	ppb	1.92	1.35	200	75-125	93.4	
63	Cu	1	72	189.50	ppb	2.03	6.11	200	75-125	91.7	
66	Zn	1	72	193.70	ppb	3.07	6.00	200	75-125	93.9	
75	As	1	72	209.90	ppb	2.62	7.78	200	75-125	101.1	
78	Se	1	72	197.90	ppb	2.08	0.79	200	75-125	98.6	
88	Sr	2	115	424.30	ppb	2.44	235.20	200	75-125	94.6	
95	Mo	2	115	193.70	ppb	1.16	13.55	200	75-125	90.1	
107	Ag	2	115	184.10	ppb	1.93	0.06	200	75-125	92.0	
111	Cd	2	115	194.70	ppb	1.99	0.10	200	75-125	97.3	
118	Sn	2	115	205.60	ppb	2.08	-0.58	200	75-125	103.1	
121	Sb	2	115	398.80	ppb	1.16	218.40	200	75-125	90.2	
137	Ba	2	115	269.60	ppb	1.72	75.96	200	75-125	96.8	
205	Tl	2	209	206.00	ppb	1.37	0.16	200	75-125	102.9	
208	Pb	2	209	202.40	ppb	1.46	1.61	200	75-125	100.4	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	2534.72	5.30	4259.45	59.5	70 -	120	ISFail
45	Sc	1		153449.73	1.64	152280.61	100.8	70 -	120	
45	Sc	2		4717237.50	1.54	5033455.00	93.7	70 -	120	
72	Ge	1		94006.12	1.66	93230.46	100.8	70 -	120	
115	In	2		5377131.50	2.43	5857332.00	91.8	70 -	120	
209	Bi	2		4438738.50	1.53	5068454.00	87.6	70 -	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\092_MS.D\092_MS.D#

Date Acquired:	Aug 1 2014 10:01 pm	Sample Name:	**1407278-03A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	-301600.00	ppb	0.65	2776.63	200	80-120	######	Fail
9	Be	2	45	197.40	ppb	0.50	0.09	200	80-120	98.7	
11	B	2	45	315.70	ppb	0.63	121.50	200	80-120	97.1	
23	Na	1	45	12160.00	ppb	1.68	7586.00	5000	80-120	91.5	
24	Mg	1	45	10450.00	ppb	2.75	5872.00	5000	80-120	91.6	
27	Al	1	45	5204.00	ppb	3.02	278.00	5000	80-120	98.5	
39	K	1	45	7555.00	ppb	2.26	2484.00	5000	80-120	101.4	
44	Ca	2	45	131300.00	ppb	0.23	########	5000	80-120	-14.0	Fail
47	Ti	1	45	215.80	ppb	1.95	3.92	200	80-120	105.9	
51	V	1	45	206.20	ppb	2.02	2.41	200	80-120	101.9	
52	Cr	1	45	201.00	ppb	2.35	0.48	200	80-120	100.3	
55	Mn	1	45	548.20	ppb	1.88	351.40	200	80-120	98.4	
56	Fe	1	72	5449.00	ppb	2.11	769.00	5000	80-120	93.6	
59	Co	1	72	199.10	ppb	1.45	1.33	200	80-120	98.9	
60	Ni	1	72	197.20	ppb	1.24	1.35	200	80-120	97.9	
63	Cu	1	72	198.70	ppb	0.78	6.11	200	80-120	96.3	
66	Zn	1	72	207.60	ppb	1.05	6.00	200	80-120	100.8	
75	As	1	72	223.50	ppb	1.99	7.78	200	80-120	107.9	
78	Se	1	72	208.20	ppb	4.41	0.79	200	80-120	103.7	
88	Sr	2	115	442.20	ppb	1.44	235.20	200	80-120	103.5	
95	Mo	2	115	213.10	ppb	1.38	13.55	200	80-120	99.8	
107	Ag	2	115	195.40	ppb	1.10	0.06	200	80-120	97.7	
111	Cd	2	115	204.10	ppb	2.44	0.10	200	80-120	102.0	
118	Sn	2	115	213.40	ppb	1.33	-0.58	200	80-120	107.0	
121	Sb	2	115	425.40	ppb	1.57	218.40	200	80-120	103.5	
137	Ba	2	115	282.10	ppb	1.98	75.96	200	80-120	103.1	
205	Tl	2	209	218.00	ppb	0.88	0.16	200	80-120	108.9	
208	Pb	2	209	209.80	ppb	0.84	1.61	200	80-120	104.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	2776.63	2.19	4259.45	65.2	70	-	120	ISFail
45	Sc	1	153085.17	1.94	152280.61	100.5	70	-	120	
45	Sc	2	4644971.50	1.00	5033455.00	92.3	70	-	120	
72	Ge	1	94231.09	1.39	93230.46	101.1	70	-	120	
115	In	2	5324385.50	1.62	5857332.00	90.9	70	-	120	
209	Bi	2	4416274.50	1.57	5068454.00	87.1	70	-	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\093_MS.D\093_MS.D#

Date Acquired:	Aug 1 2014 10:07 pm	Sample Name:	**1407278-03A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD 6020A_W
Operator:	SW	Bench Diln:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	-301800.00	ppb	0.48	2670.77	200	80-120	######	Fail
9	Be	2	45	192.90	ppb	0.78	0.09	200	80-120	96.4	
11	B	2	45	312.00	ppb	0.91	121.50	200	80-120	95.3	
23	Na	1	45	12000.00	ppb	1.34	7586.00	5000	80-120	88.3	
24	Mg	1	45	10330.00	ppb	2.22	5872.00	5000	80-120	89.2	
27	Al	1	45	5169.00	ppb	3.40	278.00	5000	80-120	97.8	
39	K	1	45	7519.00	ppb	2.61	2484.00	5000	80-120	100.7	
44	Ca	2	45	130000.00	ppb	0.48	########	5000	80-120	-40.0	Fail
47	Ti	1	45	211.30	ppb	4.98	3.92	200	80-120	103.7	
51	V	1	45	203.60	ppb	1.95	2.41	200	80-120	100.6	
52	Cr	1	45	198.20	ppb	2.36	0.48	200	80-120	98.9	
55	Mn	1	45	541.60	ppb	2.46	351.40	200	80-120	95.1	
56	Fe	1	72	5468.00	ppb	2.65	769.00	5000	80-120	94.0	
59	Co	1	72	198.70	ppb	2.01	1.33	200	80-120	98.7	
60	Ni	1	72	195.50	ppb	2.39	1.35	200	80-120	97.1	
63	Cu	1	72	197.70	ppb	1.84	6.11	200	80-120	95.8	
66	Zn	1	72	204.30	ppb	1.81	6.00	200	80-120	99.2	
75	As	1	72	219.50	ppb	1.58	7.78	200	80-120	105.9	
78	Se	1	72	210.30	ppb	2.89	0.79	200	80-120	104.8	
88	Sr	2	115	437.40	ppb	0.41	235.20	200	80-120	101.1	
95	Mo	2	115	210.30	ppb	1.18	13.55	200	80-120	98.4	
107	Ag	2	115	194.40	ppb	0.36	0.06	200	80-120	97.2	
111	Cd	2	115	200.20	ppb	0.83	0.10	200	80-120	100.0	
118	Sn	2	115	213.90	ppb	0.96	-0.58	200	80-120	107.2	
121	Sb	2	115	423.90	ppb	1.14	218.40	200	80-120	102.8	
137	Ba	2	115	281.40	ppb	1.16	75.96	200	80-120	102.7	
205	Tl	2	209	214.30	ppb	1.61	0.16	200	80-120	107.1	
208	Pb	2	209	209.30	ppb	1.12	1.61	200	80-120	103.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	2670.77	2.37	4259.45	62.7	70	-	120	ISFail
45	Sc	1	156025.08	1.54	152280.61	102.5	70	-	120	
45	Sc	2	4748919.50	0.45	5033455.00	94.3	70	-	120	
72	Ge	1	95224.01	0.67	93230.46	102.1	70	-	120	
115	In	2	5511840.00	0.43	5857332.00	94.1	70	-	120	
209	Bi	2	4578878.00	1.39	5068454.00	90.3	70	-	120	

CCV QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\094CCV1.D\094CCV1.D#

Date Acquired:	Aug 1 2014 10:13 pm	Sample Name:	**CCV3-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	7020.00	ppb	3.56	200.00	90 -	110	3510.0	Fail
9	Be	2	45	191.50	ppb	0.94	200.00	90 -	110	95.8	
11	B	2	45	206.20	ppb	1.15	200.00	90 -	110	103.1	
23	Na	1	45	4904.00	ppb	1.93	5000.00	90 -	110	98.1	
24	Mg	1	45	4838.00	ppb	3.28	5000.00	90 -	110	96.8	
27	Al	1	45	5040.00	ppb	3.77	5000.00	90 -	110	100.8	
39	K	1	45	5168.00	ppb	2.78	5000.00	90 -	110	103.4	
44	Ca	2	45	5218.00	ppb	3.07	5000.00	90 -	110	104.4	
47	Ti	1	45	208.40	ppb	3.31	200.00	90 -	110	104.2	
51	V	1	45	199.30	ppb	2.77	200.00	90 -	110	99.7	
52	Cr	1	45	199.00	ppb	3.10	200.00	90 -	110	99.5	
55	Mn	1	45	209.30	ppb	3.31	200.00	90 -	110	104.7	
56	Fe	1	72	4877.00	ppb	3.28	5000.00	90 -	110	97.5	
59	Co	1	72	202.90	ppb	2.46	200.00	90 -	110	101.5	
60	Ni	1	72	201.10	ppb	1.81	200.00	90 -	110	100.6	
63	Cu	1	72	200.90	ppb	2.10	200.00	90 -	110	100.5	
66	Zn	1	72	202.20	ppb	2.77	200.00	90 -	110	101.1	
75	As	1	72	211.00	ppb	2.58	200.00	90 -	110	105.5	
78	Se	1	72	204.30	ppb	2.37	200.00	90 -	110	102.2	
88	Sr	2	115	213.80	ppb	1.59	200.00	90 -	110	106.9	
95	Mo	2	115	193.40	ppb	1.11	200.00	90 -	110	96.7	
107	Ag	2	115	196.40	ppb	1.99	200.00	90 -	110	98.2	
111	Cd	2	115	200.40	ppb	1.44	200.00	90 -	110	100.2	
118	Sn	2	115	206.00	ppb	1.40	200.00	90 -	110	103.0	
121	Sb	2	115	196.40	ppb	1.14	200.00	90 -	110	98.2	
137	Ba	2	115	205.80	ppb	1.41	200.00	90 -	110	102.9	
205	Tl	2	209	211.70	ppb	1.86	200.00	90 -	110	105.9	
208	Pb	2	209	205.90	ppb	1.71	200.00	90 -	110	103.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3246.68	2.01	4259.45	76.2	70 -	120		
45	Sc	1	153918.05	2.10	152280.61	101.1	70 -	120		
45	Sc	2	4797315.50	0.50	5033455.00	95.3	70 -	120		
72	Ge	1	94049.49	1.50	93230.46	100.9	70 -	120		
115	In	2	5595957.50	0.91	5857332.00	95.5	70 -	120		
209	Bi	2	4644103.00	1.59	5068454.00	91.6	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\098LCVL.D\098LCVL.D#

Date Acquired:	Aug 1 2014 10:37 pm	Sample Name:	**LCVL3-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8381.00	ppb	5.10	5.00	70 -	130	######	Fail
9	Be	2	45	1.09	ppb	4.53	1.00	70 -	130	109.3	
11	B	2	45	25.38	ppb	1.95	20.00	70 -	130	126.9	
23	Na	1	45	119.50	ppb	2.17	100.00	70 -	130	119.5	
24	Mg	1	45	107.80	ppb	3.14	100.00	70 -	130	107.8	
27	Al	1	45	110.30	ppb	2.77	100.00	70 -	130	110.3	
39	K	1	45	133.90	ppb	1.45	100.00	70 -	130	133.9	Fail
44	Ca	2	45	29.40	ppb	3.48	100.00	70 -	130	29.4	Fail
47	Ti	1	45	6.19	ppb	9.18	5.00	70 -	130	123.7	
51	V	1	45	1.16	ppb	4.67	1.00	70 -	130	116.3	
52	Cr	1	45	5.53	ppb	5.55	5.00	70 -	130	110.5	
55	Mn	1	45	5.91	ppb	1.10	5.00	70 -	130	118.3	
56	Fe	1	72	105.20	ppb	3.30	100.00	70 -	130	105.2	
59	Co	1	72	5.50	ppb	2.36	5.00	70 -	130	109.9	
60	Ni	1	72	5.33	ppb	5.01	5.00	70 -	130	106.6	
63	Cu	1	72	5.13	ppb	2.20	5.00	70 -	130	102.6	
66	Zn	1	72	4.45	ppb	1.49	5.00	70 -	130	88.9	
75	As	1	72	5.91	ppb	1.01	5.00	70 -	130	118.3	
78	Se	1	72	5.83	ppb	5.39	5.00	70 -	130	116.7	
88	Sr	2	115	5.82	ppb	3.15	5.00	70 -	130	116.4	
95	Mo	2	115	5.32	ppb	2.93	5.00	70 -	130	106.4	
107	Ag	2	115	2.13	ppb	1.39	2.00	70 -	130	106.7	
111	Cd	2	115	1.24	ppb	2.78	1.00	70 -	130	123.5	
118	Sn	2	115	4.96	ppb	0.90	5.00	70 -	130	99.1	
121	Sb	2	115	2.33	ppb	5.07	2.00	70 -	130	116.6	
137	Ba	2	115	5.42	ppb	1.51	5.00	70 -	130	108.5	
205	Tl	2	209	1.23	ppb	2.36	1.00	70 -	130	122.8	
208	Pb	2	209	1.18	ppb	1.20	1.00	70 -	130	118.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3461.09	1.22	4259.45	81.3	70 -	120		
45	Sc	1	152669.83	3.26	152280.61	100.3	70 -	120		
45	Sc	2	4632986.50	0.42	5033455.00	92.0	70 -	120		
72	Ge	1	93694.88	2.12	93230.46	100.5	70 -	120		
115	In	2	5400878.50	0.83	5857332.00	92.2	70 -	120		
209	Bi	2	4492190.00	1.24	5068454.00	88.6	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\101_CCB.D\101_CCB.D#

Date Acquired:	Aug 1 2014 10:55 pm	Sample Name:	**CCB3-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	8908.000	ppb	11.91	2.00	2.00	Failsoil
9	Be	2	45	0.049	ppb	24.53	0.10	0.30	
11	B	2	45	3.072	ppb	1.51	10.00	10.00	
23	Na	1	45	7.678	ppb	0.46	50.00	#####	
24	Mg	1	45	-0.394	ppb	23.09	50.00	#####	
27	Al	1	45	-1.014	ppb	7.10	50.00	10.00	
39	K	1	45	23.580	ppb	2.88	50.00	#####	
44	Ca	2	45	-95.390	ppb	7.77	50.00	#####	
47	Ti	1	45	-0.071	ppb	86.60	4.00	3.00	
51	V	1	45	0.035	ppb	14.92	4.00	3.00	
52	Cr	1	45	0.005	ppb	2.12	2.00	2.00	
55	Mn	1	45	0.223	ppb	4.10	2.00	3.00	
56	Fe	1	72	0.899	ppb	8.07	50.00	50.00	
59	Co	1	72	0.027	ppb	9.76	2.00	3.00	
60	Ni	1	72	-0.072	ppb	7.57	2.00	3.00	
63	Cu	1	72	-0.265	ppb	10.46	2.00	2.00	
66	Zn	1	72	-0.881	ppb	14.17	4.00	2.00	
75	As	1	72	0.134	ppb	5.54	2.00	2.00	
78	Se	1	72	0.310	ppb	6.15	0.60	2.00	
88	Sr	2	115	0.097	ppb	19.62	4.00	3.00	
95	Mo	2	115	0.153	ppb	10.91	2.00	2.00	
107	Ag	2	115	0.027	ppb	21.51	0.40	1.00	
111	Cd	2	115	0.042	ppb	80.71	0.40	0.30	
118	Sn	2	115	-0.634	ppb	5.42	4.00	3.00	
121	Sb	2	115	0.108	ppb	17.41	2.00	0.80	
137	Ba	2	115	0.026	ppb	19.87	2.00	3.00	
205	Tl	2	209	0.057	ppb	17.65	2.00	0.50	
208	Pb	2	209	0.028	ppb	18.02	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3331.93	3.83	4259.45	78.2	70 - 120	
45	Sc	1	151171.67	2.54	152280.61	99.3	70 - 120	
45	Sc	2	4657409.50	1.04	5033455.00	92.5	70 - 120	
72	Ge	1	93948.45	2.33	93230.46	100.8	70 - 120	
115	In	2	5430258.00	1.17	5857332.00	92.7	70 - 120	
209	Bi	2	4550431.50	1.36	5068454.00	89.8	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\111CCV1.D\111CCV1.D#

Date Acquired:	Aug 1 2014 11:56 pm	Sample Name:	**CCV4-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	5042.00	ppb	1.16	200.00	90 -	110	2521.0	Fail
9	Be	2	45	189.90	ppb	1.09	200.00	90 -	110	95.0	
11	B	2	45	201.50	ppb	0.76	200.00	90 -	110	100.8	
23	Na	1	45	5138.00	ppb	0.84	5000.00	90 -	110	102.8	
24	Mg	1	45	4852.00	ppb	2.16	5000.00	90 -	110	97.0	
27	Al	1	45	5083.00	ppb	3.32	5000.00	90 -	110	101.7	
39	K	1	45	5206.00	ppb	2.12	5000.00	90 -	110	104.1	
44	Ca	2	45	5232.00	ppb	3.02	5000.00	90 -	110	104.6	
47	Ti	1	45	206.60	ppb	3.49	200.00	90 -	110	103.3	
51	V	1	45	198.60	ppb	1.69	200.00	90 -	110	99.3	
52	Cr	1	45	198.40	ppb	2.34	200.00	90 -	110	99.2	
55	Mn	1	45	209.50	ppb	1.81	200.00	90 -	110	104.8	
56	Fe	1	72	4810.00	ppb	2.42	5000.00	90 -	110	96.2	
59	Co	1	72	199.00	ppb	1.22	200.00	90 -	110	99.5	
60	Ni	1	72	199.20	ppb	1.66	200.00	90 -	110	99.6	
63	Cu	1	72	196.90	ppb	1.81	200.00	90 -	110	98.5	
66	Zn	1	72	202.10	ppb	1.19	200.00	90 -	110	101.1	
75	As	1	72	214.20	ppb	2.24	200.00	90 -	110	107.1	
78	Se	1	72	204.20	ppb	2.14	200.00	90 -	110	102.1	
88	Sr	2	115	218.40	ppb	0.39	200.00	90 -	110	109.2	
95	Mo	2	115	194.20	ppb	0.56	200.00	90 -	110	97.1	
107	Ag	2	115	197.00	ppb	0.27	200.00	90 -	110	98.5	
111	Cd	2	115	200.60	ppb	0.17	200.00	90 -	110	100.3	
118	Sn	2	115	207.10	ppb	0.50	200.00	90 -	110	103.6	
121	Sb	2	115	198.70	ppb	1.06	200.00	90 -	110	99.4	
137	Ba	2	115	207.10	ppb	0.20	200.00	90 -	110	103.6	
205	Tl	2	209	213.80	ppb	0.74	200.00	90 -	110	106.9	
208	Pb	2	209	205.50	ppb	0.45	200.00	90 -	110	102.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3161.59	4.11	4259.45	74.2	70 -	120		
45	Sc	1	144247.86	1.28	152280.61	94.7	70 -	120		
45	Sc	2	4457268.50	0.39	5033455.00	88.6	70 -	120		
72	Ge	1	88978.53	0.91	93230.46	95.4	70 -	120		
115	In	2	5170060.00	1.22	5857332.00	88.3	70 -	120		
209	Bi	2	4257468.50	0.37	5068454.00	84.0	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\116LCVL.D\116LCVL.D#

Date Acquired:	Aug 2 2014 12:26 am	Sample Name:	**LCVL4-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8367.00	ppb	5.83	5.00	70 -	130	######	Fail
9	Be	2	45	1.03	ppb	6.13	1.00	70 -	130	103.0	
11	B	2	45	23.75	ppb	0.80	20.00	70 -	130	118.8	
23	Na	1	45	153.20	ppb	2.34	100.00	70 -	130	153.2	Fail
24	Mg	1	45	103.90	ppb	3.33	100.00	70 -	130	103.9	
27	Al	1	45	108.90	ppb	3.12	100.00	70 -	130	108.9	
39	K	1	45	151.80	ppb	0.88	100.00	70 -	130	151.8	Fail
44	Ca	2	45	21.70	ppb	3.96	100.00	70 -	130	21.7	Fail
47	Ti	1	45	5.63	ppb	3.16	5.00	70 -	130	112.6	
51	V	1	45	1.13	ppb	0.89	1.00	70 -	130	112.8	
52	Cr	1	45	5.32	ppb	2.00	5.00	70 -	130	106.4	
55	Mn	1	45	6.24	ppb	4.42	5.00	70 -	130	124.7	
56	Fe	1	72	101.80	ppb	2.39	100.00	70 -	130	101.8	
59	Co	1	72	5.34	ppb	1.21	5.00	70 -	130	106.8	
60	Ni	1	72	5.15	ppb	1.74	5.00	70 -	130	103.0	
63	Cu	1	72	4.99	ppb	0.47	5.00	70 -	130	99.9	
66	Zn	1	72	4.24	ppb	5.37	5.00	70 -	130	84.8	
75	As	1	72	5.87	ppb	4.51	5.00	70 -	130	117.4	
78	Se	1	72	6.07	ppb	3.43	5.00	70 -	130	121.5	
88	Sr	2	115	5.76	ppb	0.79	5.00	70 -	130	115.2	
95	Mo	2	115	5.14	ppb	2.52	5.00	70 -	130	102.8	
107	Ag	2	115	2.09	ppb	3.48	2.00	70 -	130	104.7	
111	Cd	2	115	1.20	ppb	1.80	1.00	70 -	130	119.9	
118	Sn	2	115	4.98	ppb	1.97	5.00	70 -	130	99.5	
121	Sb	2	115	2.22	ppb	2.04	2.00	70 -	130	111.0	
137	Ba	2	115	5.34	ppb	2.40	5.00	70 -	130	106.9	
205	Tl	2	209	1.14	ppb	1.61	1.00	70 -	130	113.6	
208	Pb	2	209	1.12	ppb	1.67	1.00	70 -	130	111.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3122.43	3.47	4259.45	73.3	70 -	120		
45	Sc	1	147276.47	2.30	152280.61	96.7	70 -	120		
45	Sc	2	4419493.50	1.62	5033455.00	87.8	70 -	120		
72	Ge	1	90260.09	1.83	93230.46	96.8	70 -	120		
115	In	2	5147973.50	1.28	5857332.00	87.9	70 -	120		
209	Bi	2	4291316.50	1.36	5068454.00	84.7	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\118_CCB.D\118_CCB.D#

Date Acquired:	Aug 2 2014 12:39 am	Sample Name:	**CCB4-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	9279.000	ppb	2.10	2.00	2.00	Failsoil
9	Be	2	45	0.034	ppb	14.75	0.10	0.30	
11	B	2	45	2.494	ppb	0.33	10.00	10.00	
23	Na	1	45	38.930	ppb	1.83	50.00	#####	
24	Mg	1	45	0.330	ppb	20.20	50.00	#####	
27	Al	1	45	-1.360	ppb	13.08	50.00	10.00	
39	K	1	45	30.110	ppb	2.23	50.00	#####	
44	Ca	2	45	-92.680	ppb	9.32	50.00	#####	
47	Ti	1	45	-0.044	ppb	99.97	4.00	3.00	
51	V	1	45	0.055	ppb	5.81	4.00	3.00	
52	Cr	1	45	0.061	ppb	13.60	2.00	2.00	
55	Mn	1	45	0.594	ppb	5.63	2.00	3.00	
56	Fe	1	72	1.082	ppb	4.45	50.00	50.00	
59	Co	1	72	0.004	ppb	18.33	2.00	3.00	
60	Ni	1	72	-0.110	ppb	6.19	2.00	3.00	
63	Cu	1	72	-0.255	ppb	1.23	2.00	2.00	
66	Zn	1	72	-0.882	ppb	10.66	4.00	2.00	
75	As	1	72	0.148	ppb	9.91	2.00	2.00	
78	Se	1	72	0.320	ppb	11.43	0.60	2.00	
88	Sr	2	115	0.108	ppb	23.22	4.00	3.00	
95	Mo	2	115	0.153	ppb	16.50	2.00	2.00	
107	Ag	2	115	0.022	ppb	15.16	0.40	1.00	
111	Cd	2	115	0.046	ppb	32.27	0.40	0.30	
118	Sn	2	115	-0.659	ppb	2.76	4.00	3.00	
121	Sb	2	115	0.083	ppb	12.77	2.00	0.80	
137	Ba	2	115	0.046	ppb	22.96	2.00	3.00	
205	Tl	2	209	0.049	ppb	13.72	2.00	0.50	
208	Pb	2	209	0.023	ppb	10.09	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3257.84	3.05	4259.45	76.5	70 - 120	
45	Sc	1	143235.61	1.97	152280.61	94.1	70 - 120	
45	Sc	2	4436141.50	1.32	5033455.00	88.1	70 - 120	
72	Ge	1	89383.31	2.28	93230.46	95.9	70 - 120	
115	In	2	5136497.00	1.98	5857332.00	87.7	70 - 120	
209	Bi	2	4313787.00	2.01	5068454.00	85.1	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\127CCV1.D\127CCV1.D#

Date Acquired:	Aug 2 2014 01:33 am	Sample Name:	**CCV5-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	744.30	ppb	10.76	200.00	90 -	110	372.2	Fail
9	Be	2	45	187.90	ppb	0.71	200.00	90 -	110	94.0	
11	B	2	45	194.50	ppb	1.31	200.00	90 -	110	97.3	
23	Na	1	45	4887.00	ppb	1.73	5000.00	90 -	110	97.7	
24	Mg	1	45	4780.00	ppb	3.02	5000.00	90 -	110	95.6	
27	Al	1	45	5038.00	ppb	3.29	5000.00	90 -	110	100.8	
39	K	1	45	5253.00	ppb	2.44	5000.00	90 -	110	105.1	
44	Ca	2	45	4962.00	ppb	1.81	5000.00	90 -	110	99.2	
47	Ti	1	45	203.90	ppb	7.56	200.00	90 -	110	102.0	
51	V	1	45	197.20	ppb	2.48	200.00	90 -	110	98.6	
52	Cr	1	45	196.10	ppb	2.57	200.00	90 -	110	98.1	
55	Mn	1	45	206.80	ppb	2.61	200.00	90 -	110	103.4	
56	Fe	1	72	4777.00	ppb	2.84	5000.00	90 -	110	95.5	
59	Co	1	72	196.30	ppb	2.56	200.00	90 -	110	98.2	
60	Ni	1	72	195.80	ppb	2.34	200.00	90 -	110	97.9	
63	Cu	1	72	196.00	ppb	1.46	200.00	90 -	110	98.0	
66	Zn	1	72	202.70	ppb	2.01	200.00	90 -	110	101.4	
75	As	1	72	220.00	ppb	2.23	200.00	90 -	110	110.0	
78	Se	1	72	208.10	ppb	2.52	200.00	90 -	110	104.1	
88	Sr	2	115	214.20	ppb	1.19	200.00	90 -	110	107.1	
95	Mo	2	115	192.50	ppb	0.84	200.00	90 -	110	96.3	
107	Ag	2	115	194.60	ppb	1.27	200.00	90 -	110	97.3	
111	Cd	2	115	198.80	ppb	1.13	200.00	90 -	110	99.4	
118	Sn	2	115	205.00	ppb	1.70	200.00	90 -	110	102.5	
121	Sb	2	115	198.00	ppb	1.42	200.00	90 -	110	99.0	
137	Ba	2	115	203.80	ppb	1.59	200.00	90 -	110	101.9	
205	Tl	2	209	211.40	ppb	2.40	200.00	90 -	110	105.7	
208	Pb	2	209	204.30	ppb	1.85	200.00	90 -	110	102.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3267.64	1.64	4259.45	76.7	70 -	120		
45	Sc	1	160503.52	2.02	152280.61	105.4	70 -	120		
45	Sc	2	4786934.50	0.98	5033455.00	95.1	70 -	120		
72	Ge	1	97958.34	1.51	93230.46	105.1	70 -	120		
115	In	2	5527390.50	1.87	5857332.00	94.4	70 -	120		
209	Bi	2	4509198.50	1.36	5068454.00	89.0	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\131LCVL.D\131LCVL.D#

Date Acquired:	Aug 2 2014 01:57 am	Sample Name:	**LCVL5-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	7443.00	ppb	0.96	5.00	70 -	130	######	Fail
9	Be	2	45	1.07	ppb	4.17	1.00	70 -	130	106.7	
11	B	2	45	22.29	ppb	0.49	20.00	70 -	130	111.5	
23	Na	1	45	122.50	ppb	1.49	100.00	70 -	130	122.5	
24	Mg	1	45	104.40	ppb	2.64	100.00	70 -	130	104.4	
27	Al	1	45	108.70	ppb	4.30	100.00	70 -	130	108.7	
39	K	1	45	155.80	ppb	3.46	100.00	70 -	130	155.8	Fail
44	Ca	2	45	4.39	ppb	1.99	100.00	70 -	130	4.4	Fail
47	Ti	1	45	6.00	ppb	10.03	5.00	70 -	130	120.0	
51	V	1	45	1.15	ppb	5.22	1.00	70 -	130	114.6	
52	Cr	1	45	5.40	ppb	0.75	5.00	70 -	130	108.0	
55	Mn	1	45	5.93	ppb	1.81	5.00	70 -	130	118.7	
56	Fe	1	72	102.30	ppb	2.37	100.00	70 -	130	102.3	
59	Co	1	72	5.21	ppb	0.92	5.00	70 -	130	104.1	
60	Ni	1	72	5.03	ppb	1.75	5.00	70 -	130	100.7	
63	Cu	1	72	4.89	ppb	0.93	5.00	70 -	130	97.8	
66	Zn	1	72	4.28	ppb	3.79	5.00	70 -	130	85.5	
75	As	1	72	5.91	ppb	2.54	5.00	70 -	130	118.1	
78	Se	1	72	5.98	ppb	0.96	5.00	70 -	130	119.6	
88	Sr	2	115	5.85	ppb	1.29	5.00	70 -	130	117.0	
95	Mo	2	115	5.05	ppb	1.41	5.00	70 -	130	101.1	
107	Ag	2	115	2.10	ppb	1.23	2.00	70 -	130	104.8	
111	Cd	2	115	1.10	ppb	7.54	1.00	70 -	130	110.1	
118	Sn	2	115	4.88	ppb	1.65	5.00	70 -	130	97.6	
121	Sb	2	115	2.14	ppb	2.25	2.00	70 -	130	107.2	
137	Ba	2	115	5.54	ppb	4.17	5.00	70 -	130	110.8	
205	Tl	2	209	1.12	ppb	1.71	1.00	70 -	130	112.3	
208	Pb	2	209	1.14	ppb	0.76	1.00	70 -	130	114.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	3261.55	0.55	4259.45	76.6	70 -	120		
45	Sc	1	160825.17	2.46	152280.61	105.6	70 -	120		
45	Sc	2	4808856.00	0.15	5033455.00	95.5	70 -	120		
72	Ge	1	99834.44	1.21	93230.46	107.1	70 -	120		
115	In	2	5607270.50	1.67	5857332.00	95.7	70 -	120		
209	Bi	2	4650476.00	1.71	5068454.00	91.8	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\133_CCB.D\133_CCB.D#

Date Acquired:	Aug 2 2014 02:09 am	Sample Name:	**CCB5-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	7593.000	ppb	6.67	2.00	2.00	Failsoil
9	Be	2	45	0.022	ppb	17.17	0.10	0.30	
11	B	2	45	1.714	ppb	3.90	10.00	10.00	
23	Na	1	45	12.780	ppb	3.10	50.00	#####	
24	Mg	1	45	0.510	ppb	7.38	50.00	#####	
27	Al	1	45	-1.643	ppb	7.24	50.00	10.00	
39	K	1	45	38.050	ppb	3.26	50.00	#####	
44	Ca	2	45	-106.400	ppb	2.63	50.00	#####	
47	Ti	1	45	-0.030	ppb	43.30	4.00	3.00	
51	V	1	45	0.059	ppb	3.80	4.00	3.00	
52	Cr	1	45	-0.041	ppb	5.00	2.00	2.00	
55	Mn	1	45	0.372	ppb	5.93	2.00	3.00	
56	Fe	1	72	1.309	ppb	1.97	50.00	50.00	
59	Co	1	72	0.002	ppb	12.96	2.00	3.00	
60	Ni	1	72	-0.096	ppb	8.55	2.00	3.00	
63	Cu	1	72	-0.273	ppb	15.93	2.00	2.00	
66	Zn	1	72	-0.948	ppb	6.50	4.00	2.00	
75	As	1	72	0.180	ppb	3.37	2.00	2.00	
78	Se	1	72	0.505	ppb	4.22	0.60	2.00	
88	Sr	2	115	0.143	ppb	1.07	4.00	3.00	
95	Mo	2	115	0.114	ppb	7.35	2.00	2.00	
107	Ag	2	115	0.019	ppb	10.42	0.40	1.00	
111	Cd	2	115	0.018	ppb	30.04	0.40	0.30	
118	Sn	2	115	-0.674	ppb	15.98	4.00	3.00	
121	Sb	2	115	0.046	ppb	4.67	2.00	0.80	
137	Ba	2	115	0.020	ppb	14.00	2.00	3.00	
205	Tl	2	209	0.036	ppb	8.13	2.00	0.50	
208	Pb	2	209	0.019	ppb	8.95	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	3346.83	4.28	4259.45	78.6	70 - 120	
45	Sc	1	161462.52	2.63	152280.61	106.0	70 - 120	
45	Sc	2	4822383.50	0.34	5033455.00	95.8	70 - 120	
72	Ge	1	99487.76	1.57	93230.46	106.7	70 - 120	
115	In	2	5561171.50	1.36	5857332.00	94.9	70 - 120	
209	Bi	2	4575135.50	1.25	5068454.00	90.3	70 - 120	

ICSA QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\134ICSA.D\134ICSA.D#

Date Acquired:	Aug 2 2014 02:15 am	Sample Name:	**ICSA-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	3506.000	ppb	4.89	8.00	5.00	FailSoil
9	Be	2	45	0.027	ppb	22.08	0.32	0.80	
11	B	2	45	3.736	ppb	1.82	30.00	30.00	
23	Na	1	45	101700.000	ppb	2.41	#######	#######	
24	Mg	1	45	102600.000	ppb	3.10	#######	#######	
27	Al	1	45	103600.000	ppb	2.97	#######	#######	
39	K	1	45	111500.000	ppb	3.24	#######	#######	
44	Ca	2	45	106300.000	ppb	1.09	#######	#######	
47	Ti	1	45	2114.000	ppb	4.38	10.00	10.00	
51	V	1	45	0.078	ppb	5.81	10.00	10.00	
52	Cr	1	45	0.380	ppb	2.18	8.00	5.00	
55	Mn	1	45	2.419	ppb	3.77	8.00	10.00	
56	Fe	1	72	90540.000	ppb	3.45	#######	#######	
59	Co	1	72	0.556	ppb	4.42	8.00	10.00	
60	Ni	1	72	0.299	ppb	7.14	8.00	10.00	
63	Cu	1	72	0.536	ppb	9.23	8.00	10.00	
66	Zn	1	72	0.930	ppb	4.15	10.00	5.00	
75	As	1	72	0.429	ppb	2.26	4.00	5.00	
78	Se	1	72	0.664	ppb	17.49	2.00	5.00	
88	Sr	2	115	0.570	ppb	1.79	10.00	10.00	
95	Mo	2	115	2025.000	ppb	2.37	8.00	5.00	
107	Ag	2	115	0.166	ppb	3.87	0.80	2.00	
111	Cd	2	115	0.500	ppb	28.30	1.20	1.00	
118	Sn	2	115	-0.637	ppb	16.72	10.00	10.00	
121	Sb	2	115	0.735	ppb	6.34	4.00	2.50	
137	Ba	2	115	0.337	ppb	13.73	8.00	10.00	
205	Tl	2	209	0.044	ppb	6.43	4.00	1.50	
208	Pb	2	209	0.332	ppb	3.22	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	2949.28	3.13	4259.45	69.2	70 - 120	ISFail
45	Sc	1	152725.70	2.34	152280.61	100.3	70 - 120	
45	Sc	2	4490169.50	1.27	5033455.00	89.2	70 - 120	
72	Ge	1	94096.56	1.58	93230.46	100.9	70 - 120	
115	In	2	5007772.50	1.74	5857332.00	85.5	70 - 120	
209	Bi	2	4056037.50	1.93	5068454.00	80.0	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\14H01m04.B\135ICSB.D\135ICSB.D#

Date Acquired:	Aug 2 2014 02:21 am	Sample Name:	**ICSAB-140801**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 01 2014 01:54 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	1852.00	ppb	4.95	---	80 -		120	
9	Be	2	45	0.04	ppb	7.78	---	80 -		120	
11	B	2	45	3.98	ppb	4.13	---	80 -		120	
23	Na	1	45	102600.00	ppb	1.72	100000.00	80 -		120	
24	Mg	1	45	102200.00	ppb	2.68	100000.00	80 -		120	
27	Al	1	45	102400.00	ppb	3.37	100000.00	80 -		120	
39	K	1	45	110500.00	ppb	2.69	100000.00	80 -		120	
44	Ca	2	45	104800.00	ppb	1.49	100000.00	80 -		120	
47	Ti	1	45	2107.00	ppb	2.67	---	80 -		120	
51	V	1	45	39.80	ppb	2.62	40.00	80 -		120	
52	Cr	1	45	19.86	ppb	4.06	20.00	80 -		120	
55	Mn	1	45	22.29	ppb	2.65	20.00	80 -		120	
56	Fe	1	72	91460.00	ppb	3.55	100000.00	80 -		120	
59	Co	1	72	38.31	ppb	2.12	40.00	80 -		120	
60	Ni	1	72	37.32	ppb	3.52	40.00	80 -		120	
63	Cu	1	72	19.41	ppb	2.65	20.00	80 -		120	
66	Zn	1	72	19.79	ppb	1.90	20.00	80 -		120	
75	As	1	72	22.44	ppb	2.46	20.00	80 -		120	
78	Se	1	72	20.23	ppb	3.78	20.00	80 -		120	
88	Sr	2	115	1.81	ppb	2.48	---	80 -		120	
95	Mo	2	115	1990.00	ppb	1.90	---	80 -		120	
107	Ag	2	115	18.84	ppb	2.52	20.00	80 -		120	
111	Cd	2	115	10.10	ppb	1.19	10.00	80 -		120	
118	Sn	2	115	-0.67	ppb	4.41	---	80 -		120	
121	Sb	2	115	0.48	ppb	9.51	---	80 -		120	
137	Ba	2	115	0.34	ppb	10.46	---	80 -		120	
205	Tl	2	209	0.03	ppb	6.82	---	80 -		120	
208	Pb	2	209	0.18	ppb	4.59	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	2950.62	3.57	4259.45	69.3	70 -		120	ISFail
45	Sc	1	149025.77	2.33	152280.61	97.9	70 -		120	
45	Sc	2	4416423.50	0.70	5033455.00	87.7	70 -		120	
72	Ge	1	92316.29	1.64	93230.46	99.0	70 -		120	
115	In	2	4931984.50	1.95	5857332.00	84.2	70 -		120	
209	Bi	2	3960001.30	1.77	5068454.00	78.1	70 -		120	

ICP-MS3_140804A
For

DHL Work Order
1407278

Lab Data Review Check List

EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS3_140804A SOP: Metals-ICP-MS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			x
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			x
P/A Factor	Before ICAL	Increasing trend	X			
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			x
ICSAB (N/A for Method 200.8)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLS and ICSA/ICSAB is N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			x
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%			X	
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%	X			
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%			X	
Lab Control Sample Dup (LCSD)	Every Batch	80-120%			X	
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)			X	
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%			X	
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)			X	
Dilution Test (SD) - RPD	Every Batch	10	X			
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)	X			

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			X
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> 5% of highest standard	X			
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality	X			X
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

TECHNICAL DIRECTOR / QA MANAGER APPROVAL SIGNATURE AND DATE STAMP:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> MDL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag data / Case narrative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

See notes in Run Log

DILUTIONS AND RERUNS - NO BATCH QC OTHER THAN SD/PDS INCLUDED. SEE ICPMS_140801B.

Analyst: Karyn Lane Date of Completion: 8/4/2014

Second-Level Review: Evelyn Lane Ferrero Reviewer Date Stamp:

REVIEWED
By Evelyn Ferrero at 8:46:24 AM, 8/5/2014

DHL Analytical, Inc.

Run ID: **ICP-MS3_140804A** **Run No.:** 74686

Analytical Run Date: 8/4/2014 **InstrumentID:** ICP-MS3

Analyst: Karyn Lane

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TW	CAL	R74686	8/4/2014 11:56:00 AM		
1/20 ppb STD.	1	ICPMS_TW	CAL	R74686	8/4/2014 12:03:00 PM		
10/200 ppb STD.	1	ICPMS_TW	CAL	R74686	8/4/2014 12:09:00 PM		
50/1000 ppb STD.	1	ICPMS_TW	CAL	R74686	8/4/2014 12:15:00 PM		
100/2000 ppb STD.	1	ICPMS_TW	CAL	R74686	8/4/2014 12:21:00 PM		
250/5000 ppb STD.	1	ICPMS_TW	CAL	R74686	8/4/2014 12:27:00 PM		
500/10000 ppb STD.	1	ICPMS_TW	CAL	R74686	8/4/2014 12:33:00 PM		
2000/25000 ppb STD.	1	ICPMS_TW	CAL	R74686	8/4/2014 12:39:00 PM		
ICSA-140804	1	ICPMS_TW	ICSA	R74686	8/4/2014 1:33:00 PM		
ICSAB-140804	1	ICPMS_TW	ICSB	R74686	8/4/2014 1:39:00 PM		
ICV1-140804	1	ICPMS_TW	ICV	R74686	8/4/2014 1:58:00 PM		
ICB1-140804	1	ICPMS_TW	ICB	R74686	8/4/2014 2:04:00 PM		
ILCVL-140804	1	6020A_W	LCVL	R74686	8/4/2014 2:10:00 PM		
1407278-03A	50	ICPMS_TW	SAMP	64976	8/4/2014 2:16:00 PM		DNR - FOR QC REFERENCE ONLY.
1407278-03A SD	250	ICPMS_TW	SD	64976	8/4/2014 2:22:00 PM		
1407292-01C	50	ICPMS_TW	SAMP	64976	8/4/2014 2:40:00 PM		
1407292-02C	10	ICPMS_TW	SAMP	64976	8/4/2014 2:46:00 PM		
1407292-03C	50	ICPMS_TW	SAMP	64976	8/4/2014 2:52:00 PM		
1407292-04C	50	ICPMS_TW	SAMP	64976	8/4/2014 2:58:00 PM		
1407292-05C	50	ICPMS_TW	SAMP	64976	8/4/2014 3:04:00 PM		
1407292-06C	50	ICPMS_TW	SAMP	64976	8/4/2014 3:11:00 PM		
1407278-03A PDS	50	ICPMS_TW	PDS	64976	8/4/2014 3:17:00 PM		
CCV1-140804	1	ICPMS_TW	CCV	R74686	8/4/2014 3:23:00 PM		
LCVL1-140804	1	6020A_W	LCVL	R74686	8/4/2014 3:35:00 PM		
CCB1-140804	1	ICPMS_TW	CCB	R74686	8/4/2014 3:41:00 PM		
1407292-07C	10	ICPMS_TW	SAMP	64981	8/4/2014 3:47:00 PM		
1407292-07C SD	50	ICPMS_TW	SD	64981	8/4/2014 3:53:00 PM		
1407292-08C	100	ICPMS_TW	SAMP	64981	8/4/2014 3:59:00 PM		
1407292-09C	100	ICPMS_TW	SAMP	64981	8/4/2014 4:05:00 PM		
1407292-10C	10	ICPMS_TW	SAMP	64981	8/4/2014 4:11:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140729	ICPMS CCV 200/5000 PPB		10/27/2014
MET-H2CAL-1407	ICPMS High Cal2 2000ppb std 8		10/15/2014
MET-HCAL-14071	ICPMS High Cal 500ppb/10ppm s		10/15/2014
MET-ICV-140729	ICPMS ICV 100 ppb		10/27/2014
MET-IS-140718	INTERNAL STANDARD 1 PPM		10/16/2014
MET-L2CAL-14071	ICPMS Low Cal2 1/20ppb std 2		10/15/2014
MET-LCAL-140717	ICPMS Low Cal 10/200ppb std 3		10/15/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		10/15/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		10/15/2014
MET-MCAL-14071	ICPMS Mid Cal 250/5000ppb std		10/15/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140715	250 PPM Naturals+Al+Fe PDS		10/13/2014
MET-PDS-140717-	10 PPM CUSTOM PDS SOLUTI		10/15/2014
MET-PDS-140717-	10 PPM Ag+Sb PDS		10/15/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		10/16/2014

DHL Analytical, Inc.

Run ID: ICP-MS3_140804A **Run No.:** 74686

1407292-07C PDS	10	ICPMS_TW	PDS	64981	8/4/2014 4:17:00 PM		
CCV2-140804	1	ICPMS_TW	CCV	R74686	8/4/2014 4:23:00 PM		
CCB2-140804	1	ICPMS_TW	CCB	R74686	8/4/2014 4:29:00 PM		
LCVL2-140804	1	6020A_W	LCVL	R74686	8/4/2014 4:35:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140729	ICPMS CCV 200/5000 PPB		10/27/2014
MET-H2CAL-1407	ICPMS High Cal2 2000ppb std 8		10/15/2014
MET-HCAL-14071	ICPMS High Cal 500ppb/10ppm s		10/15/2014
MET-ICV-140729	ICPMS ICV 100 ppb		10/27/2014
MET-IS-140718	INTERNAL STANDARD 1 PPM		10/16/2014
MET-L2CAL-14071	ICPMS Low Cal2 1/20ppb std 2		10/15/2014
MET-LCAL-140717	ICPMS Low Cal 10/200ppb std 3		10/15/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		10/15/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		10/15/2014
MET-MCAL-14071	ICPMS Mid Cal 250/5000ppb std		10/15/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140715	250 PPM Naturals+Al+Fe PDS		10/13/2014
MET-PDS-140717-	10 PPM CUSTOM PDS SOLUTI		10/15/2014
MET-PDS-140717-	10 PPM Ag+Sb PDS		10/15/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		10/16/2014

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		CALBEG	Start of CALIB						
2	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
3	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
4	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
5	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
6	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		1/20 ppb STD.	CAL ICPMS_TW	Level 2				
7	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		10/200 ppb STD.	CAL ICPMS_TW	Level 3				
8	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		50/1000 ppb STD.	CAL ICPMS_TW	Level 4				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		100/2000 ppb STD.	CAL ICPMS_TW	Level 5				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		250/5000 ppb STD.	CAL ICPMS_TW	Level 6				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		500/10000 ppb STD.	CAL ICPMS_TW	Level 7				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
15	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		1/20 ppb STD.	CAL ICPMS_TW	Level 2				
16	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		10/200 ppb STD.	CAL ICPMS_TW	Level 3				
17	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		50/1000 ppb STD.	CAL ICPMS_TW	Level 4				
18	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		100/2000 ppb STD.	CAL ICPMS_TW	Level 5				
19	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		250/5000 ppb STD.	CAL ICPMS_TW	Level 6				
20	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		500/10000 ppb STD.	CAL ICPMS_TW	Level 7				
21	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		2000/25000 ppb STD.	CAL ICPMS_TW	Level 8				
22	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
23	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
24		Keyword		CALEND	End of CALIB						

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
25		Keyword		ICSBEG	Start of ICS						
26	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-140804	ICSAICPMS_TW	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-140804	ICSBICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CAL ICPMS_TW	1.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		RINSE	CAL ICPMS_TW	1.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CAL ICPMS_TW	1.000				
31	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		RINSE	CAL ICPMS_TW	1.000				
32	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-140804	ICSAICPMS_TW	1.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-140804	ICSBICPMS_TW	1.000				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CAL ICPMS_TW	1.000				
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		RINSE	CAL ICPMS_TW	1.000				
36		Keyword		ICSEND	End of ICS						
37		Keyword		SMPLBEG	Start of SMPL						
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-140804	ICV ICPMS_TW	1.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	2101		ICB1-140804	ICB ICPMS_TW	1.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		ILCVL-140804	LCVL6020A_W	1.000				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2201		1407278-03A	SAMPICPMS_TW	50.00				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2202		1407278-03A SD	SD_ICPMS_TW	250.0				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2203		1407278-05A	SAMP6020A_W	10.00				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2204		1407278-12A	SAMP6020A_W	10.00				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2205		1407292-01C	SAMPICPMS_TW	50.00				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2206		1407292-02C	SAMPICPMS_TW	10.00				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2207		1407292-03C	SAMPICPMS_TW	50.00				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2208		1407292-04C	SAMPICPMS_TW	50.00				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
49	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2209		1407292-05C	SAMPICPMS_TW	50.00				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2210		1407292-06C	SAMPICPMS_TW	50.00				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2211		1407278-03A PDS	PDS ICPMS_TW	50.00				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-140804	CCV ICPMS_TW	1.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB1-140804	CCB ICPMS_TW	1.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL1-140804	LCVL6020A_W	1.000				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-140804	CCB ICPMS_TW	1.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2301		1407292-07C	SAMPICPMS_TW	10.00				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2302		1407292-07C SD	SD_ICPMS_TW	50.00				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2303		1407292-08C	SAMPICPMS_TW	100.0				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2304		1407292-09C	SAMPICPMS_TW	100.0				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2305		1407292-10C	SAMPICPMS_TW	10.00				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2306		1407292-07C PDS	PDS ICPMS_TW	10.00				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-140804	CCV ICPMS_TW	1.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB2-140804	CCB ICPMS_TW	1.000				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL2-140804	LCVL6020A_W	1.000				
65		Keyword		StandBy							
66		Keyword		SMPLEND	End of SMPL						
67		Keyword		End	End of Sequence						
68		Keyword		CCVBEG	Start of CCV						
69		Keyword		CCVEND	End of CCV						
70		Keyword		BLKBEG	Start of BLANK						
71		Keyword		BLKEND	End of BLANK						
72		Keyword		ERRBEG	Start of ERRTERM						
73		Keyword		ERREND	End of ERRTERM						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/1/2014 8:00:00 AM**
Digestion: **Start: 8/1/2014 8:30:00 AM / Stop: 8/1/2014 1:26:00 PM**
Prep End Date: **8/1/2014 1:27:08 PM**

Prep Batch **64976** Prep Code: **3005A** Technician: **Matthew Kuhaneck**

Prep Factor Units: **mL/mL**

Equipment List
Thermometer #71
Hot Block #4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1407278-01A	Aqueous		50	50	1.000	1 of 1
1407278-02A	Aqueous		50	50	1.000	1 of 1
1407278-03A	Aqueous		50	50	1.000	1 of 3
1407278-03A MS	Aqueous		50	50	1.000	of
1407278-03A MSD	Aqueous		50	50	1.000	of
1407278-03A PDS	Aqueous		50	50	1.000	of
1407278-03A SD	Aqueous		50	50	1.000	of
1407278-04A	Aqueous		50	50	1.000	1 of 1
1407278-05A	Aqueous		50	50	1.000	1 of 1
1407278-06A	Aqueous		50	50	1.000	1 of 1
1407278-07A	Aqueous		50	50	1.000	1 of 1
1407278-08A	Aqueous		50	50	1.000	1 of 1
1407278-09A	Aqueous		50	50	1.000	1 of 1
1407278-10A	Aqueous		50	50	1.000	1 of 1
1407278-11A	Aqueous		50	50	1.000	1 of 1
1407278-12A	Aqueous		50	50	1.000	1 of 1
1407278-13A	Aqueous		50	50	1.000	1 of 1
1407292-01C	Aqueous		50	50	1.000	1 of 1
1407292-02C	Aqueous		50	50	1.000	1 of 1
1407292-03C	Aqueous		50	50	1.000	1 of 1
1407292-04C	Aqueous		50	50	1.000	1 of 1
1407292-05C	Aqueous		50	50	1.000	1 of 1
1407292-06C	Aqueous		50	50	1.000	1 of 1
LCS-64976	Aqueous		50	50	1.000	of
LCSD-64976	Aqueous		50	50	1.000	of
MB-64976	Aqueous		50	50	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
8095	Hydrochloric Acid (Trace Metal Grade)	1	ml	07/05/2016
8144	Digestion Vessels	69	ml	11/10/2014
8198	Nitric Acid (Trace Metal Grade)	1	ml	12/24/2015

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-140109-01	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/06/2015
MET-140109-02	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/10/2015
MET-SPIKE-140716-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	08/16/2014
MET-SPIKE-140724-1	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MS	0.2	08/24/2014
MET-SPIKE-140724-2	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	08/24/2014

REVIEWED
By Evelyn Ferrero at 2:46:55 PM, 8/4/2014

Calibration Summary Report

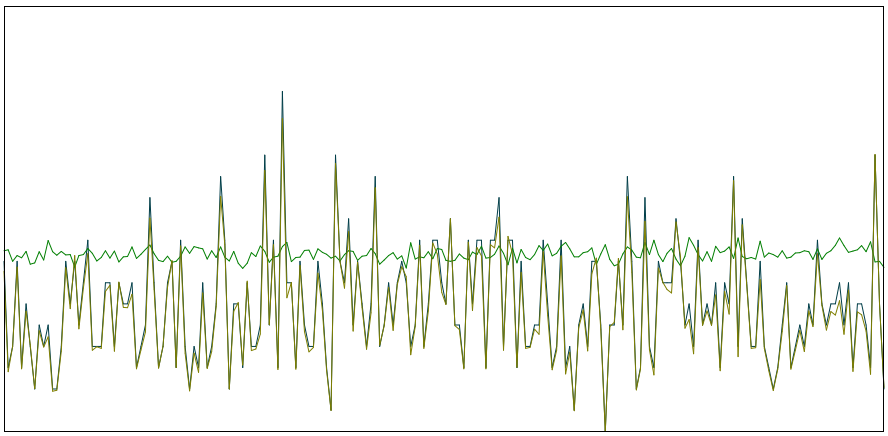
Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3Fe.C
Last Update: Aug 04 2014 01:45 pm
Cal Type: Y=aX+[blank]

Standard	Date Acquired	File
BLANK STD 1	Aug 4 2014 11:56 am	c:\icpchem\1\data\14h04k02.b\013calb.d\
1/20 ppb STD.	Aug 4 2014 12:03 pm	c:\icpchem\1\data\14h04k02.b\014cals.d\
10/200 ppb STD.	Aug 4 2014 12:09 pm	c:\icpchem\1\data\14h04k02.b\015cals.d\
50/1000 ppb STD.	Aug 4 2014 12:15 pm	c:\icpchem\1\data\14h04k02.b\016cals.d\
100/2000 ppb STD.	Aug 4 2014 12:21 pm	c:\icpchem\1\data\14h04k02.b\017cals.d\
250/5000 ppb STD.	Aug 4 2014 12:27 pm	c:\icpchem\1\data\14h04k02.b\018cals.d\

Element Name	Corr Coef	Coef A	Coef B	Lvl 2	Lvl 6	Lvl 7	L7 %R	Lvl 8	L8 %R
Li	0.8174	1.41E-006	0.02378	-1214.00	-1,092	24		2385	
Be	0.9998	0.07662	0.009423	0.97	257	496	99%	--------	######
B	1.0000	0.04628	0.1686	0.34	255	517	103%	1,995	100%
Na	1.0000	0.2097	40.38	26.34	4,988	10,030	100%	24,990	100%
Mg	0.9999	0.09508	0.4414	19.27	4,898	9,670	97%	25,160	101%
Al	1.0000	0.02727	0.1741	18.74	4,980	10,010	100%	--------	######
K	1.0000	0.05809	8.934	18.80	4,936	9,821	98%	25,090	100%
Ca	0.9998	0.007019	0.7114	50.67	4,819	10,220	102%	24,950	100%
Ti	1.0000	0.02695	0.00401	0.99	252	498	100%	2,000	100%
V	1.0000	1.127	0.3348	0.95	250	495	99%	2,001	100%
Cr	1.0000	1.446	0.258	0.92	251	495	99%	2,001	100%
Mn	1.0000	0.5828	0.1541	0.93	256	507	101%	1,997	100%
Fe	0.9999	1.615	5.967	18.35	5,116	9,920	99%	--------	######
Co	1.0000	3.663	0.595	0.99	256	505	101%	1,998	100%
Ni	1.0000	1.031	0.498	1.11	258	510	102%	1,996	100%
Cu	1.0000	2.872	1.322	0.96	257	506	101%	1,997	100%
Zn	1.0000	0.3368	0.6054	1.81	257	511	102%	1,996	100%
As	1.0000	0.2126	0.09846	0.91	252	505	101%	1,999	100%
Se	1.0000	0.01	0.01009	0.61	248	503	101%	2,000	100%
Sr	0.9999	0.2777	0.04103	1.00	260	523	105%	1,993	100%
Mo	0.9999	0.05317	0.02405	0.83	245	503	101%	--------	######
Ag	0.9998	0.1335	0.01116	0.97	243	504	101%	--------	######
Cd	1.0000	0.02864	0.003738	0.84	243	496	99%	2,002	100%
Sn	0.9998	0.08197	0.01903	0.96	251	538	108%	1,990	100%
Sb	0.9996	0.1188	0.0128	0.92	239	507	101%	--------	######
Ba	1.0000	0.04198	0.00556	0.94	244	498	100%	2,002	100%
Tl	0.9999	0.2837	0.04888	0.91	258	520	104%	1,994	100%
Pb	0.9999	0.388	0.05043	0.93	254	520	104%	1,994	100%

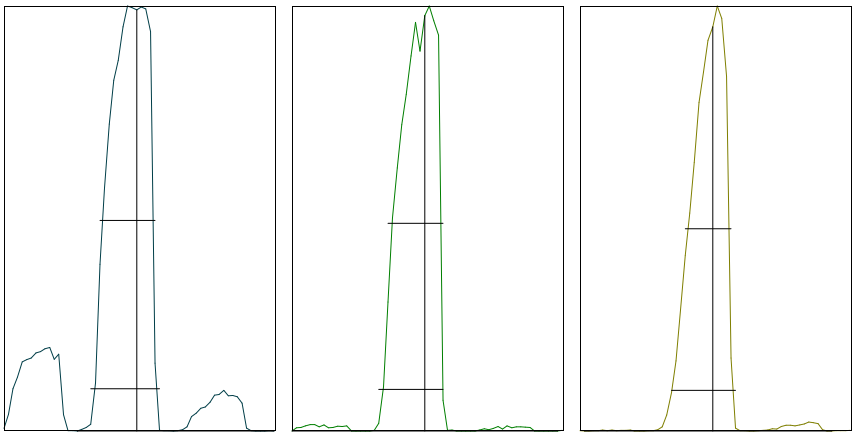
Tune Report

Tune File : He.U
Comment :



Integration Time: 0.1000 sec
Sampling Period: 0.2000 sec
n: 200
Oxide: 156/140 0.509%
Doubly Charged: 70/140 1.566%

m/z	Range	Count	Mean	RSD%	Background
51	20	2.0	5.9	44.66	0.50
59	5,000	1929.0	2084.9	3.53	0.60
51/59	1	0.104%	0.283%	44.41	



m/z:	59	89	205
Height:	2,056	1,144	5,081
Axis:	59.00	89.00	205.00
W-50%:	0.60	0.60	0.50
W-10%:	0.7500	0.700	0.700

Integration Time: 0.1000 sec
Acquisition Time: 22.5600 sec

Y axis : Linear

Generated : Aug 04, 2014 10:15:04
Printed : Aug 04, 2014 10:15:06

Tune Report

Tune File : He.U
Comment :

Tuning Parameters

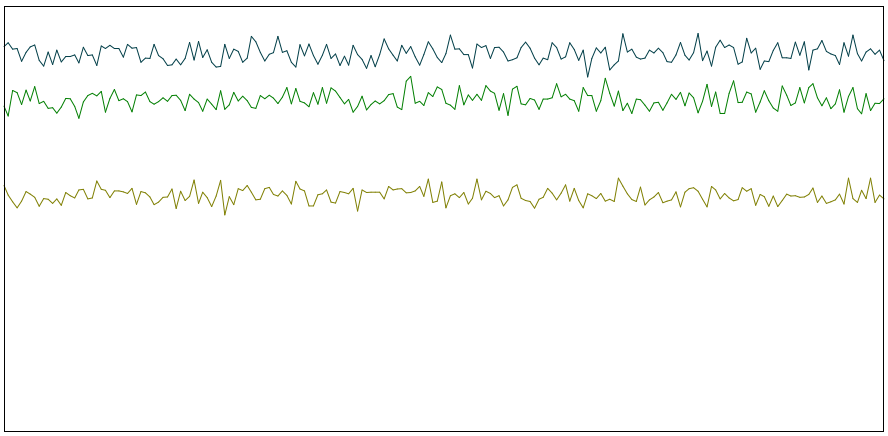
===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1550	W	Extract 1	:	0	V	AMU Gain	:	121	
RF Matching	:	1.7	V	Extract 2	:	-130	V	AMU Offset	:	123	
Smpl Depth	:	10	mm	Omega Bias-ce	:	-16	V	Axis Gain	:	0.9993	
Torch-H	:	-0.2	mm	Omega Lens-ce	:	1	V	Axis Offset	:	-0.06	
Torch-V	:	1.1	mm	Cell Entrance	:	-40	V	QP Bias	:	-16.8	V
Carrier Gas	:	1.2	L/min	QP Focus	:	-9	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1700	V
Sample Pump	:	---	rps	OctP RF	:	200	V	Pulse HV	:	1230	V
S/C Temp	:	2	degC	OctP Bias	:	-16.8	V				

===Reaction Cell===

Reaction Mode	:	ON									
H2 Gas	:	0	mL/min	He Gas	:	4.7	mL/min	Optional Gas	:	---	%

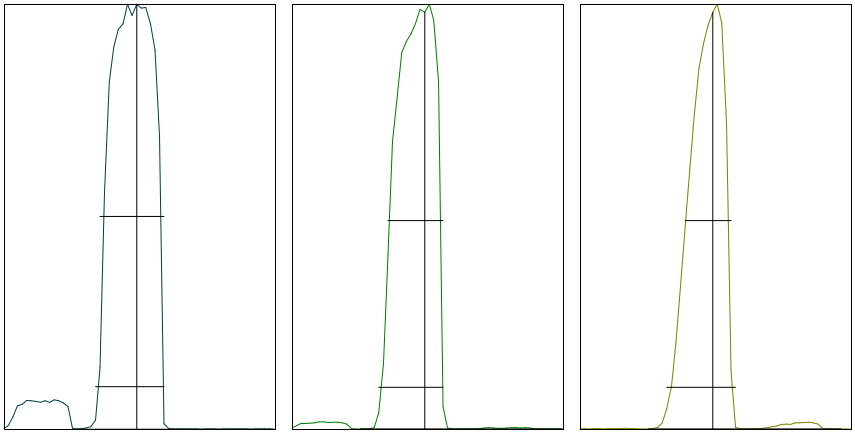
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.8200 sec	
n:	200	
Oxide:	156/140	1.015%
Doubly Charged:	70/140	1.767%

m/z	Range	Count	Mean	RSD%	Background
7	10,000	8721.0	8888.2	2.17	16.80
89	20,000	15658.0	15609.4	2.45	13.60
205	20,000	10935.0	11098.4	2.95	23.60
156/140	2	1.004%	0.997%	9.49	
70/140	5	1.596%	1.737%	7.16	
23	100,000	88486.0	88607.3	1.02	14.00
80	500,000	318933.0	317973.2	0.42	15.40



m/z:	7	89	205
Height:	8,956	15,707	11,325
Axis:	7.00	89.00	205.00
W-50%:	0.70	0.60	0.50
W-10%:	0.7500	0.700	0.7500

Integration Time:	0.1000 sec
Acquisition Time:	22.7600 sec

Y axis : Linear

Generated : Aug 04, 2014 10:11:03
Printed : Aug 04, 2014 10:11:05

Tune Report

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1550	W	Extract 1	:	0	V	AMU Gain	:	121	
RF Matching	:	1.7	V	Extract 2	:	-130	V	AMU Offset	:	123	
Smpl Depth	:	10	mm	Omega Bias-ce	:	-16	V	Axis Gain	:	0.9993	
Torch-H	:	-0.2	mm	Omega Lens-ce	:	1	V	Axis Offset	:	-0.06	
Torch-V	:	1.1	mm	Cell Entrance	:	-40	V	QP Bias	:	-2.5	V
Carrier Gas	:	1.2	L/min	QP Focus	:	2	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1700	V
Sample Pump	:	---	rps	OctP RF	:	200	V	Pulse HV	:	1230	V
S/C Temp	:	2	degC	OctP Bias	:	-6	V				

===Reaction Cell===

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

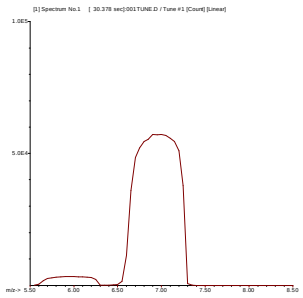
Generated : Aug 04, 2014 10:11:03
Printed : Aug 04, 2014 10:11:07

6020 QC Tune Report

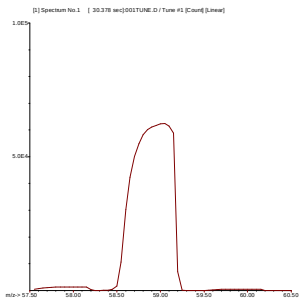
Data File: C:\ICPCHEM\1\DATA\14H04k01.B\001TUNE.D
Date Acquired: Aug 4 2014 10:31 am
Acq. Method: TN6020.M
Operator: SW
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

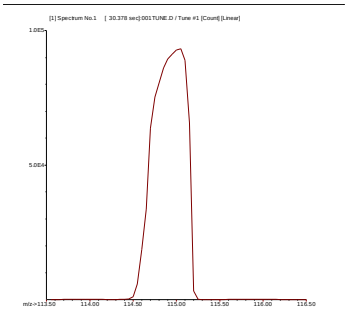
Element	Actual	Required	Flag
7 Li	1.24	5.00	
59 Co	1.69	5.00	
115 In	3.75	5.00	
205 Tl	0.83	5.00	



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: 0.55
Required: 0.90
Flag:



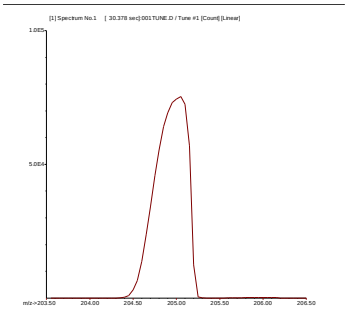
115 In

Mass Calib.

Actual:	115.00	
Required:	114.90 -	115.10
Flag:		

Peak Width

Actual:	0.55
Required:	0.90
Flag:	



205 Tl

Mass Calib.

Actual:	205.00	
Required:	204.90 -	205.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	

P/A Factor Tuning Report

Acquired:Aug 4 2014 10:18 am

Mass[amu]	Element	P/A Factor
6	Li	0.073637
23	Na	0.089900
24	Mg	0.093852
27	Al	0.097071
39	K	0.097260
44	Ca	Sensitivity too low
45	Sc	0.098226
47	Ti	Sensitivity too low
51	V	0.100355
52	Cr	0.103243
55	Mn	0.104780
59	Co	0.108255
60	Ni	0.110162
63	Cu	0.112118
66	Zn	0.111704
72	Ge	0.110512
75	As	0.109303
78	Se	Sensitivity too low
88	Sr	0.110568
95	Mo	0.109359
106	(Cd)	0.115560
107	Ag	Sensitivity too low
108	(Cd)	0.115797
111	Cd	0.116886
115	In	0.116629
118	Sn	0.116406
121	Sb	0.116193
137	Ba	Sensitivity too low
205	Tl	0.125021
206	(Pb)	0.124685
207	(Pb)	0.124781
208	Pb	0.125006
209	Bi	0.124879
238		0.124792

===Detector Parameters===
Discriminator: 8.0 mV
Analog HV: 1700 V
Pulse HV: 1230 V

Calibration Blank QC Report

Acq. Method: DHL_3Fe.M Sample Name: BLANK STD 1
Operator: SW Instrument: ICPMS3
Last Cal. Update: Aug 04 2014 11:42 am
Date Acquired: Aug 4 2014 11:56 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	1033.55	P	29.23	2.83
7	Li	2	45	513.37	P	34.80	6.78
9	Be	2	45	203.34	P	52.07	25.61
11	B	2	45	3640.67	P	109.00	2.99
23	Na	1	45	26654.68	P	41.65	0.16
24	Mg	1	45	292.24	P	60.77	20.80
27	Al	1	45	115.11	P	13.42	11.66
39	K	1	45	5900.54	P	214.60	3.64
44	Ca	2	45	15357.77	P	121.70	0.79
45	Sc	1	---	132067.80	P	3016.00	2.28
45	Sc	2	---	4317822.00	A	16990.00	0.39
47	Ti	1	45	2.67	P	1.33	49.99
51	V	1	45	220.89	P	11.10	5.03
51	V	2	---		P		
52	Cr	1	45	170.67	P	26.23	15.37
55	Mn	1	45	101.78	P	7.34	7.22
56	Fe	1	72	2604.90	P	213.00	8.18
59	Co	1	72	259.56	P	7.34	2.83
60	Ni	1	72	217.34	P	14.85	6.83
60	Ni	2	---		P		
63	Cu	1	72	576.47	P	24.20	4.20
63	Cu	2	---		P		
66	Zn	1	72	264.01	P	16.38	6.20
66	Zn	2	---		P		
72	Ge	1	---	87257.11	P	1147.00	1.31
72	Ge	2	---		P		
75	As	1	72	42.96	P	1.30	3.03
78	Se	1	72	4.41	P	1.19	26.96
88	Sr	2	###	1147.91	P	277.40	24.17
95	Mo	2	###	672.27	P	54.20	8.06
107	Ag	2	###	312.24	P	128.10	41.03
111	Cd	2	###	104.62	P	37.44	35.79
115	In	2	---	5593534.00	A	53010.00	0.95
118	Sn	2	###	532.26	P	121.00	22.73
121	Sb	2	###	357.80	P	106.30	29.71
137	Ba	2	###	155.56	P	57.39	36.89
205	Tl	2	###	1265.70	P	179.10	14.15
208	Pb	2	###	1307.88	P	332.60	25.43
209	Bi	2	---	5173224.00	A	87670.00	1.69

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 1/20 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 4 2014 12:03 pm
Last Cal. Update: Aug 04 2014 12:00 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	973.21	P	39.50	4.06	
7	Li	2	45	476.69	P	24.04	5.04	Fail
9	Be	2	45	1802.42	P	124.80	6.92	
11	B	2	45	3983.02	P	150.80	3.79	
23	Na	1	45	29725.04	P	334.40	1.13	
24	Mg	1	45	1472.37	P	10.72	0.73	
27	Al	1	45	443.57	P	0.77	0.17	
39	K	1	45	6494.17	P	105.20	1.62	
44	Ca	2	45	23047.68	P	204.80	0.89	
45	Sc	1	---	129578.30	P	3594.00	2.77	
45	Sc	2	---	4319976.00	A	21680.00	0.50	
47	Ti	1	45	20.00	P	7.05	35.27	
51	V	1	45	909.83	P	42.68	4.69	
51	V	2	---		P			
52	Cr	1	45	1033.40	P	59.20	5.73	
55	Mn	1	45	449.79	P	42.59	9.47	
56	Fe	1	72	15315.02	P	544.50	3.56	
59	Co	1	72	1814.83	P	39.09	2.15	
60	Ni	1	72	704.48	P	8.15	1.16	
60	Ni	2	---		P			
63	Cu	1	72	1758.82	P	84.21	4.79	
63	Cu	2	---		P			
66	Zn	1	72	522.24	P	7.34	1.41	
66	Zn	2	---		P			
72	Ge	1	---	86006.54	P	1184.00	1.38	
72	Ge	2	---		P			
75	As	1	72	126.00	P	2.22	1.76	
78	Se	1	72	6.96	P	0.65	9.35	
88	Sr	2	115	8836.88	P	240.50	2.72	
95	Mo	2	115	1885.78	P	51.79	2.75	
107	Ag	2	115	3906.37	P	199.90	5.12	
111	Cd	2	115	774.16	P	56.86	7.34	
115	In	2	---	5541077.00	A	63190.00	1.14	
118	Sn	2	115	2699.33	P	45.51	1.69	
121	Sb	2	115	3389.51	P	119.80	3.53	
137	Ba	2	115	1247.90	P	53.58	4.29	
205	Tl	2	209	7887.54	P	231.50	2.94	
208	Pb	2	209	10591.31	P	479.90	4.53	
209	Bi	2	---	5159891.00	A	35580.00	0.69	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	973.21	4.06	1033.55	94.2	70 - 120	
45	Sc	1	129578.30	2.77	132067.77	98.1	70 - 120	
45	Sc	2	4319976.00	0.50	4317821.50	100.0	70 - 120	
72	Ge	1	86006.54	1.38	87257.11	98.6	70 - 120	
115	In	2	5541076.50	1.14	5593534.00	99.1	70 - 120	
209	Bi	2	5159891.00	0.69	5173223.50	99.7	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 10/200 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 4 2014 12:09 pm
Last Cal. Update: Aug 04 2014 12:06 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	1027.65	P	97.14	9.45	
7	Li	2	45	531.14	P	18.36	3.46	
9	Be	2	45	16881.86	P	640.70	3.80	
11	B	2	45	12953.75	P	218.90	1.69	
23	Na	1	45	58143.24	P	880.40	1.51	
24	Mg	1	45	12521.17	P	219.70	1.75	
27	Al	1	45	3687.71	P	220.60	5.98	
39	K	1	45	14322.09	P	192.40	1.34	
44	Ca	2	45	96954.13	P	603.20	0.62	
45	Sc	1	---	127460.10	P	3500.00	2.75	
45	Sc	2	---	4327690.00	A	61660.00	1.42	
47	Ti	1	45	193.78	P	8.88	4.58	
51	V	1	45	7503.72	P	216.30	2.88	
51	V	2	---		P			
52	Cr	1	45	9570.93	P	291.90	3.05	
55	Mn	1	45	3969.14	P	122.70	3.09	
56	Fe	1	72	144057.59	P	3981.00	2.76	
59	Co	1	72	16532.16	P	328.60	1.99	
60	Ni	1	72	5106.92	P	38.69	0.76	
60	Ni	2	---		P			
63	Cu	1	72	13545.84	P	46.27	0.34	
63	Cu	2	---		P			
66	Zn	1	72	2929.29	P	97.72	3.34	
66	Zn	2	---		P			
72	Ge	1	---	84956.67	P	1459.00	1.72	
72	Ge	2	---		P			
75	As	1	72	934.59	P	12.57	1.35	
78	Se	1	72	44.56	P	0.11	0.25	
88	Sr	2	115	80269.99	P	577.30	0.72	
95	Mo	2	115	14736.24	P	117.00	0.79	
107	Ag	2	115	36815.33	P	118.00	0.32	
111	Cd	2	115	8081.73	P	78.33	0.97	
115	In	2	---	5628042.00	A	48220.00	0.86	
118	Sn	2	115	23971.66	P	70.17	0.29	
121	Sb	2	115	32048.73	P	333.80	1.04	
137	Ba	2	115	11588.37	P	171.00	1.48	
205	Tl	2	209	73101.54	P	259.40	0.35	
208	Pb	2	209	101016.90	P	816.30	0.81	
209	Bi	2	---	5170075.00	A	42240.00	0.82	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	1027.65	9.45	1033.55	99.4	70 - 120	
45	Sc	1	127460.06	2.75	132067.77	96.5	70 - 120	
45	Sc	2	4327690.50	1.42	4317821.50	100.2	70 - 120	
72	Ge	1	84956.67	1.72	87257.11	97.4	70 - 120	
115	In	2	5628041.50	0.86	5593534.00	100.6	70 - 120	
209	Bi	2	5170075.50	0.82	5173223.50	99.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 50/1000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 4 2014 12:15 pm
Last Cal. Update: Aug 04 2014 12:12 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	984.88	P	68.52	6.96	
7	Li	2	45	470.03	P	33.33	7.09	Fail
9	Be	2	45	84209.32	P	932.80	1.11	
11	B	2	45	53430.46	P	627.20	1.17	
23	Na	1	45	160935.70	P	2693.00	1.67	
24	Mg	1	45	61026.67	P	1675.00	2.74	
27	Al	1	45	17738.93	P	419.70	2.37	
39	K	1	45	42824.74	P	816.20	1.91	
44	Ca	2	45	162205.50	P	999.10	0.62	
45	Sc	1	---	128905.10	P	2208.00	1.71	
45	Sc	2	---	4324186.00	A	5993.00	0.14	
47	Ti	1	45	865.38	P	72.93	8.43	
51	V	1	45	36722.14	P	614.70	1.67	
51	V	2	---		P			
52	Cr	1	45	47567.71	P	875.80	1.84	
55	Mn	1	45	19379.83	P	320.70	1.65	
56	Fe	1	72	712670.81	P	13600.00	1.91	
59	Co	1	72	81270.65	P	891.00	1.10	
60	Ni	1	72	23307.56	P	253.40	1.09	
60	Ni	2	---		P			
63	Cu	1	72	64946.79	P	1384.00	2.13	
63	Cu	2	---		P			
66	Zn	1	72	7714.98	P	130.80	1.70	
66	Zn	2	---		P			
72	Ge	1	---	85270.96	P	1348.00	1.58	
72	Ge	2	---		P			
75	As	1	72	4566.48	P	95.75	2.10	
78	Se	1	72	214.52	P	10.11	4.71	
88	Sr	2	115	387931.09	P	3711.00	0.96	
95	Mo	2	115	71937.32	P	719.50	1.00	
107	Ag	2	115	179920.59	P	1795.00	1.00	
111	Cd	2	115	38844.93	P	850.20	2.19	
115	In	2	---	5528090.00	A	22600.00	0.41	
118	Sn	2	115	115407.00	P	821.30	0.71	
121	Sb	2	115	157512.00	P	1798.00	1.14	
137	Ba	2	115	57004.28	P	310.80	0.55	
205	Tl	2	209	357730.69	P	2079.00	0.58	
208	Pb	2	209	493586.31	P	3478.00	0.70	
209	Bi	2	---	5073420.00	A	19100.00	0.38	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	984.88	6.96	1033.55	95.3	70 - 120	
45	Sc	1	128905.13	1.71	132067.77	97.6	70 - 120	
45	Sc	2	4324186.50	0.14	4317821.50	100.1	70 - 120	
72	Ge	1	85270.96	1.58	87257.11	97.7	70 - 120	
115	In	2	5528089.50	0.41	5593534.00	98.8	70 - 120	
209	Bi	2	5073420.00	0.38	5173223.50	98.1	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 100/2000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 4 2014 12:21 pm
Last Cal. Update: Aug 04 2014 12:19 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	978.68	P	123.80	12.65	
7	Li	2	45	477.81	P	23.65	4.95	Fail
9	Be	2	45	169430.41	P	888.00	0.52	
11	B	2	45	104647.60	P	1545.00	1.48	
23	Na	1	45	293754.59	P	3148.00	1.07	
24	Mg	1	45	120080.20	P	1041.00	0.87	
27	Al	1	45	35130.58	P	887.10	2.53	
39	K	1	45	79222.10	P	1024.00	1.29	
44	Ca	2	45	308645.91	P	3195.00	1.04	
45	Sc	1	---	128489.50	P	2154.00	1.68	
45	Sc	2	---	4311838.00	A	23850.00	0.55	
47	Ti	1	45	1775.71	P	109.90	6.19	
51	V	1	45	72853.57	P	1401.00	1.92	
51	V	2	---		P			
52	Cr	1	45	94023.29	P	1934.00	2.06	
55	Mn	1	45	38854.91	P	516.70	1.33	
56	Fe	1	72	1446851.00	A	24670.00	1.71	
59	Co	1	72	160656.50	P	2040.00	1.27	
60	Ni	1	72	46310.08	P	284.80	0.61	
60	Ni	2	---		P			
63	Cu	1	72	127885.40	P	1324.00	1.04	
63	Cu	2	---		P			
66	Zn	1	72	14908.33	P	378.70	2.54	
66	Zn	2	---		P			
72	Ge	1	---	85362.18	P	1157.00	1.36	
72	Ge	2	---		P			
75	As	1	72	9024.09	P	107.80	1.19	
78	Se	1	72	427.05	P	22.03	5.16	
88	Sr	2	115	778981.88	P	13390.00	1.72	
95	Mo	2	115	143626.30	P	2310.00	1.61	
107	Ag	2	115	358335.91	P	4278.00	1.19	
111	Cd	2	115	77513.76	P	815.10	1.05	
115	In	2	---	5553896.00	A	50250.00	0.90	
118	Sn	2	115	230438.50	P	3936.00	1.71	
121	Sb	2	115	313365.91	P	4931.00	1.57	
137	Ba	2	115	114184.40	P	2067.00	1.81	
205	Tl	2	209	719825.69	P	5501.00	0.76	
208	Pb	2	209	985380.69	P	13290.00	1.35	
209	Bi	2	---	5035747.00	A	22350.00	0.44	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	978.68	12.65	1033.55	94.7	70 - 120	
45	Sc	1	128489.53	1.68	132067.77	97.3	70 - 120	
45	Sc	2	4311838.50	0.55	4317821.50	99.9	70 - 120	
72	Ge	1	85362.18	1.36	87257.11	97.8	70 - 120	
115	In	2	5553896.00	0.90	5593534.00	99.3	70 - 120	
209	Bi	2	5035747.50	0.44	5173223.50	97.3	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 250/5000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 4 2014 12:27 pm
Last Cal. Update: Aug 04 2014 12:25 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	980.15	P	38.76	3.95	
7	Li	2	45	473.36	P	32.83	6.94	Fail
9	Be	2	45	419069.31	P	3694.00	0.88	
11	B	2	45	254508.09	P	2076.00	0.82	
23	Na	1	45	704100.19	P	15630.00	2.22	
24	Mg	1	45	302111.50	P	8097.00	2.68	
27	Al	1	45	88122.97	P	2770.00	3.14	
39	K	1	45	191652.20	P	5058.00	2.64	
44	Ca	2	45	734832.50	P	7220.00	0.98	
45	Sc	1	---	129615.10	P	2273.00	1.75	
45	Sc	2	---	4255361.00	A	55050.00	1.29	
47	Ti	1	45	4396.40	P	88.80	2.02	
51	V	1	45	182869.59	P	2882.00	1.58	
51	V	2	---		A			
52	Cr	1	45	235387.30	P	4669.00	1.98	
55	Mn	1	45	96623.24	P	1623.00	1.68	
56	Fe	1	72	3533353.00	A	81620.00	2.31	
59	Co	1	72	400537.59	P	6309.00	1.58	
60	Ni	1	72	113911.30	P	1046.00	0.92	
60	Ni	2	---		P			
63	Cu	1	72	316015.31	P	4840.00	1.53	
63	Cu	2	---		P			
66	Zn	1	72	37279.81	P	623.60	1.67	
66	Zn	2	---		P			
72	Ge	1	---	85478.30	P	1259.00	1.47	
72	Ge	2	---		P			
75	As	1	72	22909.56	P	456.50	1.99	
78	Se	1	72	1066.42	P	45.57	4.27	
88	Sr	2	115	1942725.00	A	18340.00	0.94	
95	Mo	2	115	350792.41	P	6802.00	1.94	
107	Ag	2	115	872813.88	P	7288.00	0.84	
111	Cd	2	115	187096.20	P	3178.00	1.70	
115	In	2	---	5373411.00	A	74380.00	1.38	
118	Sn	2	115	553576.81	P	8672.00	1.57	
121	Sb	2	115	764815.88	P	9353.00	1.22	
137	Ba	2	115	274978.50	P	2592.00	0.94	
205	Tl	2	209	1811355.00	A	14900.00	0.82	
208	Pb	2	209	2446354.00	A	39380.00	1.61	
209	Bi	2	---	4954035.00	A	24800.00	0.50	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	980.15	3.95	1033.55	94.8	70 - 120	
45	Sc	1	129615.12	1.75	132067.77	98.1	70 - 120	
45	Sc	2	4255361.00	1.29	4317821.50	98.6	70 - 120	
72	Ge	1	85478.31	1.47	87257.11	98.0	70 - 120	
115	In	2	5373411.00	1.38	5593534.00	96.1	70 - 120	
209	Bi	2	4954035.00	0.50	5173223.50	95.8	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 500/10000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 4 2014 12:33 pm
Last Cal. Update: Aug 04 2014 12:31 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	1024.28	P	26.00	2.54	
7	Li	2	45	504.47	P	59.85	11.86	
9	Be	2	45	804871.13	A	10120.00	1.26	
11	B	2	45	510401.31	P	4083.00	0.80	
23	Na	1	45	1422489.00	A	32550.00	2.29	
24	Mg	1	45	610404.81	P	12170.00	1.99	
27	Al	1	45	181266.30	P	5611.00	3.10	
39	K	1	45	384560.41	P	8926.00	2.32	
44	Ca	2	45	1533764.00	A	12530.00	0.82	
45	Sc	1	---	132717.91	P	2386.00	1.80	
45	Sc	2	---	4234675.00	A	44660.00	1.05	
47	Ti	1	45	8898.44	P	213.40	2.40	
51	V	1	45	370339.50	P	9136.00	2.47	
51	V	2	---		A			
52	Cr	1	45	475027.00	P	12220.00	2.57	
55	Mn	1	45	196271.09	P	3922.00	2.00	
56	Fe	1	72	6955971.00	A	156500.00	2.25	
59	Co	1	72	803429.31	P	13170.00	1.64	
60	Ni	1	72	228392.50	P	3191.00	1.40	
60	Ni	2	---		P			
63	Cu	1	72	631164.00	P	8751.00	1.39	
63	Cu	2	---		A			
66	Zn	1	72	74980.48	P	1761.00	2.35	
66	Zn	2	---		P			
72	Ge	1	---	86808.24	P	1024.00	1.18	
72	Ge	2	---		P			
75	As	1	72	46645.56	P	938.70	2.01	
78	Se	1	72	2188.27	P	52.41	2.40	
88	Sr	2	115	3861535.00	A	33740.00	0.87	
95	Mo	2	115	712273.50	P	2253.00	0.32	
107	Ag	2	115	1790007.00	A	6179.00	0.35	
111	Cd	2	115	377781.19	P	3586.00	0.95	
115	In	2	---	5319299.00	A	59710.00	1.12	
118	Sn	2	115	1172745.00	A	21840.00	1.86	
121	Sb	2	115	1601296.00	A	26410.00	1.65	
137	Ba	2	115	555709.63	P	7066.00	1.27	
205	Tl	2	209	3611538.00	A	25780.00	0.71	
208	Pb	2	209	4940966.00	A	18250.00	0.37	
209	Bi	2	---	4899063.00	A	9281.00	0.19	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	1024.28	2.54	1033.55	99.1	70 - 120	
45	Sc	1	132717.89	1.80	132067.77	100.5	70 - 120	
45	Sc	2	4234674.50	1.05	4317821.50	98.1	70 - 120	
72	Ge	1	86808.24	1.18	87257.11	99.5	70 - 120	
115	In	2	5319299.00	1.12	5593534.00	95.1	70 - 120	
209	Bi	2	4899063.00	0.19	5173223.50	94.7	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 2000/25000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 4 2014 12:39 pm
Last Cal. Update: Aug 04 2014 12:36 pm

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)	Flag
6 Li 2 ---	946.11	P	22.34	2.36		
7 Li 2 45	563.37	P	43.34	7.69		
9 Be 2 45	2996803.00	A	13040.00	0.44		
11 B 2 45	1920265.00	A	8687.00	0.45		
23 Na 1 45	3406698.00	A	51320.00	1.51		
24 Mg 1 45	1543350.00	A	39160.00	2.54		
27 Al 1 45	348.01	P	40.27	11.57		
39 K 1 45	946080.13	A	32010.00	3.38		
44 Ca 2 45	3650180.00	A	22750.00	0.62		
45 Sc 1 ---	129021.10	P	2494.00	1.93		
45 Sc 2 ---	4151918.00	A	27530.00	0.66		
47 Ti 1 45	34777.24	P	934.10	2.69		
51 V 1 45	1455977.00	A	35770.00	2.46		
51 V 2 ---		A				
52 Cr 1 45	1866769.00	A	32230.00	1.73		
55 Mn 1 45	751003.13	P	15640.00	2.08		
56 Fe 1 72	8466.30	P	1740.00	20.55		
59 Co 1 72	3090605.00	A	58260.00	1.89		
60 Ni 1 72	869034.69	P	15300.00	1.76		
60 Ni 2 ---		A				
63 Cu 1 72	2423660.00	A	43940.00	1.81		
63 Cu 2 ---		A				
66 Zn 1 72	284183.41	P	5455.00	1.92		
66 Zn 2 ---		A				
72 Ge 1 ---	84465.58	P	983.20	1.16		
72 Ge 2 ---		P				
75 As 1 72	179528.50	P	3062.00	1.71		
78 Se 1 72	8451.80	P	177.30	2.10		
88 Sr 2 115	14543330.00	A	122700.00	0.84		
95 Mo 2 115	2821608.00	A	26450.00	0.94		
107 Ag 2 115	1771.49	P	870.00	49.11		
111 Cd 2 115	1506748.00	A	6904.00	0.46		
115 In 2 ---	5255759.00	A	23170.00	0.44		
118 Sn 2 115	4288158.00	A	25580.00	0.60		
121 Sb 2 115	1871.48	P	808.90	43.22		
137 Ba 2 115	2208026.00	A	3860.00	0.17		
205 Tl 2 209	13581030.00	A	114900.00	0.85		
208 Pb 2 209	18580760.00	A	89970.00	0.48		
209 Bi 2 ---	4801304.00	A	22280.00	0.46		

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li 2	946.11	2.36	1033.55	91.5	70 - 120	
45 Sc 1	129021.07	1.93	132067.77	97.7	70 - 120	
45 Sc 2	4151918.00	0.66	4317821.50	96.2	70 - 120	
72 Ge 1	84465.59	1.16	87257.11	96.8	70 - 120	
115 In 2	5255759.50	0.44	5593534.00	94.0	70 - 120	
209 Bi 2	4801303.50	0.46	5173223.50	92.8	70 - 120	

ICSA QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\029ICSA.D\029ICSA.D#

Date Acquired:	Aug 4 2014 01:33 pm	Sample Name:	**ICSA-140804**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2014 12:42 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	14940.000	ppb	9.31	8.00	5.00	FailSoil
9	Be	2	45	-0.040	ppb	16.38	0.32	0.80	
11	B	2	45	2.685	ppb	3.09	30.00	30.00	
23	Na	1	45	105400.000	ppb	2.17	#######	#######	
24	Mg	1	45	103500.000	ppb	2.14	#######	#######	
27	Al	1	45	100600.000	ppb	2.71	#######	#######	
39	K	1	45	103800.000	ppb	1.78	#######	#######	
44	Ca	2	45	101900.000	ppb	1.06	#######	#######	
47	Ti	1	45	2006.000	ppb	2.14	10.00	10.00	
51	V	1	45	-0.079	ppb	7.72	10.00	10.00	
52	Cr	1	45	0.352	ppb	6.50	8.00	5.00	
55	Mn	1	45	2.197	ppb	5.17	8.00	10.00	
56	Fe	1	72	95340.000	ppb	2.75	#######	#######	
59	Co	1	72	0.464	ppb	3.57	8.00	10.00	
60	Ni	1	72	0.270	ppb	5.15	8.00	10.00	
63	Cu	1	72	0.658	ppb	2.97	8.00	10.00	
66	Zn	1	72	1.459	ppb	1.83	10.00	5.00	
75	As	1	72	0.168	ppb	3.61	4.00	5.00	
78	Se	1	72	-0.131	ppb	12.76	2.00	5.00	
88	Sr	2	115	0.392	ppb	1.74	10.00	10.00	
95	Mo	2	115	2015.000	ppb	1.42	8.00	5.00	
107	Ag	2	115	0.087	ppb	4.85	0.80	2.00	
111	Cd	2	115	0.330	ppb	18.53	1.20	1.00	
118	Sn	2	115	0.025	ppb	9.08	10.00	10.00	
121	Sb	2	115	0.607	ppb	5.86	4.00	2.50	
137	Ba	2	115	0.247	ppb	6.25	8.00	10.00	
205	Tl	2	209	-0.068	ppb	9.91	4.00	1.50	
208	Pb	2	209	0.270	ppb	1.51	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	1068.01	7.33	1033.55	103.3	70 - 120	
45	Sc	1	121346.55	1.40	132067.77	91.9	70 - 120	
45	Sc	2	3561190.80	0.52	4317821.50	82.5	70 - 120	
72	Ge	1	80094.40	1.08	87257.11	91.8	70 - 120	
115	In	2	4703458.50	0.32	5593534.00	84.1	70 - 120	
209	Bi	2	4385438.00	0.95	5173223.50	84.8	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\030ICSB.D\030ICSB.D#

Date Acquired:	Aug 4 2014 01:39 pm	Sample Name:	**ICSAB-140804**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2014 12:42 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	15270.00	ppb	1.59	---	80 -		120	
9	Be	2	45	-0.05	ppb	8.30	---	80 -		120	
11	B	2	45	2.48	ppb	1.70	---	80 -		120	
23	Na	1	45	104000.00	ppb	2.18	100000.00	80 -		120	
24	Mg	1	45	102100.00	ppb	2.44	100000.00	80 -		120	
27	Al	1	45	98960.00	ppb	3.39	100000.00	80 -		120	
39	K	1	45	102500.00	ppb	2.40	100000.00	80 -		120	
44	Ca	2	45	99640.00	ppb	0.69	100000.00	80 -		120	
47	Ti	1	45	1994.00	ppb	3.23	---	80 -		120	
51	V	1	45	38.73	ppb	2.21	40.00	80 -		120	
52	Cr	1	45	19.62	ppb	3.51	20.00	80 -		120	
55	Mn	1	45	20.86	ppb	3.66	20.00	80 -		120	
56	Fe	1	72	94500.00	ppb	2.88	100000.00	80 -		120	
59	Co	1	72	38.66	ppb	1.99	40.00	80 -		120	
60	Ni	1	72	37.93	ppb	1.01	40.00	80 -		120	
63	Cu	1	72	19.58	ppb	2.30	20.00	80 -		120	
66	Zn	1	72	19.38	ppb	1.53	20.00	80 -		120	
75	As	1	72	19.55	ppb	1.65	20.00	80 -		120	
78	Se	1	72	18.29	ppb	7.40	20.00	80 -		120	
88	Sr	2	115	1.57	ppb	1.76	---	80 -		120	
95	Mo	2	115	2011.00	ppb	0.60	---	80 -		120	
107	Ag	2	115	18.43	ppb	1.31	20.00	80 -		120	
111	Cd	2	115	9.33	ppb	4.30	10.00	80 -		120	
118	Sn	2	115	0.04	ppb	5.29	---	80 -		120	
121	Sb	2	115	0.35	ppb	6.08	---	80 -		120	
137	Ba	2	115	0.22	ppb	10.95	---	80 -		120	
205	Tl	2	209	-0.09	ppb	1.16	---	80 -		120	
208	Pb	2	209	0.12	ppb	8.18	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	1072.63	4.62	1033.55	103.8	70 -		120	
45	Sc	1	121022.59	1.63	132067.77	91.6	70 -		120	
45	Sc	2	3515675.80	0.43	4317821.50	81.4	70 -		120	
72	Ge	1	80141.38	1.20	87257.11	91.8	70 -		120	
115	In	2	4660434.50	1.24	5593534.00	83.3	70 -		120	
209	Bi	2	4304730.50	1.11	5173223.50	83.2	70 -		120	

CCV QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\033ICV.D\033ICV.D#

Date Acquired:	Aug 4 2014 01:58 pm	Sample Name:	**ICV1-140804**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2014 12:42 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	27310.00	ppb	3.67	100.00	90 -	110	######	Fail
9	Be	2	45	102.90	ppb	1.15	100.00	90 -	110	102.9	
11	B	2	45	97.85	ppb	1.77	100.00	90 -	110	97.9	
23	Na	1	45	2721.00	ppb	1.61	2500.00	90 -	110	108.8	
24	Mg	1	45	2646.00	ppb	1.60	2500.00	90 -	110	105.8	
27	Al	1	45	2420.00	ppb	2.11	2500.00	90 -	110	96.8	
39	K	1	45	2638.00	ppb	3.14	2500.00	90 -	110	105.5	
44	Ca	2	45	2483.00	ppb	1.42	2500.00	90 -	110	99.3	
47	Ti	1	45	97.07	ppb	4.97	100.00	90 -	110	97.1	
51	V	1	45	95.01	ppb	3.00	100.00	90 -	110	95.0	
52	Cr	1	45	97.89	ppb	2.82	100.00	90 -	110	97.9	
55	Mn	1	45	95.31	ppb	2.09	100.00	90 -	110	95.3	
56	Fe	1	72	2564.00	ppb	2.49	2500.00	90 -	110	102.6	
59	Co	1	72	101.00	ppb	2.41	100.00	90 -	110	101.0	
60	Ni	1	72	100.40	ppb	1.41	100.00	90 -	110	100.4	
63	Cu	1	72	99.85	ppb	1.50	100.00	90 -	110	99.9	
66	Zn	1	72	97.08	ppb	1.26	100.00	90 -	110	97.1	
75	As	1	72	94.76	ppb	2.27	100.00	90 -	110	94.8	
78	Se	1	72	90.54	ppb	2.00	100.00	90 -	110	90.5	
88	Sr	2	115	92.52	ppb	1.90	100.00	90 -	110	92.5	
95	Mo	2	115	89.13	ppb	1.57	100.00	90 -	110	89.1	Fail
107	Ag	2	115	92.49	ppb	1.76	100.00	90 -	110	92.5	
111	Cd	2	115	91.71	ppb	0.46	100.00	90 -	110	91.7	
118	Sn	2	115	95.85	ppb	0.93	100.00	90 -	110	95.9	
121	Sb	2	115	91.51	ppb	1.42	100.00	90 -	110	91.5	
137	Ba	2	115	91.73	ppb	1.68	100.00	90 -	110	91.7	
205	Tl	2	209	95.89	ppb	1.30	100.00	90 -	110	95.9	
208	Pb	2	209	97.46	ppb	1.59	100.00	90 -	110	97.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	1214.46	3.59	1033.55	117.5	70 -	120		
45	Sc	1	128507.02	1.94	132067.77	97.3	70 -	120		
45	Sc	2	3795146.30	0.41	4317821.50	87.9	70 -	120		
72	Ge	1	84469.07	1.73	87257.11	96.8	70 -	120		
115	In	2	5246726.00	1.03	5593534.00	93.8	70 -	120		
209	Bi	2	4878687.00	1.01	5173223.50	94.3	70 -	120		

ICB QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\034_ICB.D\034_ICB.D#

Date Acquired:	Aug 4 2014 02:04 pm	Sample Name:	**ICB1-140804**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2014 12:42 pm	Instrument:	ICPMS3

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	2855.00	ppb	2.43	5.00	Fail
9	Be	2	45	-0.01	ppb	32.08	0.80	
11	B	2	45	-0.28	ppb	2.65	10.00	
23	Na	1	45	23.98	ppb	3.57	50.00	
24	Mg	1	45	16.14	ppb	35.05	50.00	
27	Al	1	45	14.87	ppb	33.17	30.00	
39	K	1	45	13.34	ppb	4.68	50.00	
44	Ca	2	45	-8.97	ppb	5.96	50.00	
47	Ti	1	45	0.40	ppb	62.27	10.00	
51	V	1	45	-0.04	ppb	8.62	10.00	
52	Cr	1	45	-0.05	ppb	19.63	3.00	
55	Mn	1	45	0.04	ppb	11.49	10.00	
56	Fe	1	72	15.33	ppb	39.35	50.00	
59	Co	1	72	-0.06	ppb	20.56	3.00	
60	Ni	1	72	-0.10	ppb	17.17	3.00	
63	Cu	1	72	-0.02	ppb	9.71	3.00	
66	Zn	1	72	-0.06	ppb	6.81	10.00	
75	As	1	72	0.00	ppb	6.57	10.00	
78	Se	1	72	-0.21	ppb	7.61	10.00	
88	Sr	2	115	-0.02	ppb	28.16	10.00	
95	Mo	2	115	0.98	ppb	7.23	10.00	
107	Ag	2	115	0.00	ppb	40.84	2.00	
111	Cd	2	115	-0.04	ppb	36.77	1.00	
118	Sn	2	115	-0.04	ppb	31.68	10.00	
121	Sb	2	115	-0.02	ppb	38.35	1.00	
137	Ba	2	115	0.00	ppb	29.14	3.00	
205	Tl	2	209	0.03	ppb	15.12	1.00	
208	Pb	2	209	0.00	ppb	25.82	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	1076.43	3.63	1033.55	104.1	70 - 120	
45	Sc	1	125939.90	2.52	132067.77	95.4	70 - 120	
45	Sc	2	3734404.30	0.89	4317821.50	86.5	70 - 120	
72	Ge	1	84257.71	1.57	87257.11	96.6	70 - 120	
115	In	2	5200833.50	0.95	5593534.00	93.0	70 - 120	
209	Bi	2	4882559.50	0.56	5173223.50	94.4	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\035LCVL.D\035LCVL.D#

Date Acquired:	Aug 4 2014 02:10 pm	Sample Name:	**ILCVL-140804**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2014 12:42 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	399.10	ppb	14.97	5.00	70 -	130	7982.0	Fail
9	Be	2	45	1.13	ppb	5.16	1.00	70 -	130	112.7	
11	B	2	45	21.36	ppb	1.76	20.00	70 -	130	106.8	
23	Na	1	45	118.30	ppb	2.17	100.00	70 -	130	118.3	
24	Mg	1	45	113.10	ppb	2.61	100.00	70 -	130	113.1	
27	Al	1	45	115.20	ppb	3.75	100.00	70 -	130	115.2	
39	K	1	45	110.90	ppb	1.70	100.00	70 -	130	110.9	
44	Ca	2	45	86.00	ppb	0.89	100.00	70 -	130	86.0	
47	Ti	1	45	5.37	ppb	0.82	5.00	70 -	130	107.4	
51	V	1	45	1.02	ppb	7.00	1.00	70 -	130	102.1	
52	Cr	1	45	5.49	ppb	4.48	5.00	70 -	130	109.7	
55	Mn	1	45	5.15	ppb	3.85	5.00	70 -	130	103.0	
56	Fe	1	72	112.30	ppb	2.25	100.00	70 -	130	112.3	
59	Co	1	72	5.43	ppb	1.48	5.00	70 -	130	108.5	
60	Ni	1	72	5.44	ppb	1.47	5.00	70 -	130	108.8	
63	Cu	1	72	5.44	ppb	0.87	5.00	70 -	130	108.7	
66	Zn	1	72	5.17	ppb	10.13	5.00	70 -	130	103.4	
75	As	1	72	5.08	ppb	2.76	5.00	70 -	130	101.5	
78	Se	1	72	4.70	ppb	4.46	5.00	70 -	130	94.1	
88	Sr	2	115	5.09	ppb	2.00	5.00	70 -	130	101.8	
95	Mo	2	115	5.27	ppb	1.63	5.00	70 -	130	105.3	
107	Ag	2	115	1.95	ppb	0.51	2.00	70 -	130	97.6	
111	Cd	2	115	0.99	ppb	12.71	1.00	70 -	130	99.1	
118	Sn	2	115	5.20	ppb	1.93	5.00	70 -	130	104.0	
121	Sb	2	115	1.99	ppb	1.55	2.00	70 -	130	99.3	
137	Ba	2	115	5.19	ppb	2.44	5.00	70 -	130	103.8	
205	Tl	2	209	0.95	ppb	1.57	1.00	70 -	130	95.2	
208	Pb	2	209	1.01	ppb	0.74	1.00	70 -	130	100.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	1013.48	3.25	1033.55	98.1	70 -	120		
45	Sc	1	126783.29	1.91	132067.77	96.0	70 -	120		
45	Sc	2	3776485.30	0.92	4317821.50	87.5	70 -	120		
72	Ge	1	84617.36	1.93	87257.11	97.0	70 -	120		
115	In	2	5206066.00	1.45	5593534.00	93.1	70 -	120		
209	Bi	2	4907866.00	0.65	5173223.50	94.9	70 -	120		

Sample QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\036AREF.D\036AREF.D#

Date Acquired:	Aug 4 2014 02:16 pm	Sample Name:	**1407278-03A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TW
Operator:	SW	Bench Diln:	50.00
Last Cal. Update:	Aug 04 2014 12:42 pm		
Instrument:	ICPMS3		

FOR QC REFERENCE ONLY.

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	19310.000	ppb	#REF!	6.56	2000.00	OUTCAL
9	Be	2	45	-0.071	ppb	#REF!	6.84	2000.00	ND
11	B	2	45	1.485	ppb	#REF!	0.63	2000.00	ND
23	Na	1	45	172.800	ppb	#REF!	2.11	25000.00	>RL
24	Mg	1	45	123.400	ppb	#REF!	1.64	25000.00	>RL
27	Al	1	45	8.448	ppb	#REF!	8.84	10000.00	ND
39	K	1	45	60.110	ppb	#REF!	4.42	25000.00	>RL
44	Ca	2	45	2582.000	ppb	#REF!	0.56	25000.00	>RL
47	Ti	1	45	0.185	ppb	#REF!	58.08	2000.00	ND
51	V	1	45	-0.061	ppb	#REF!	6.03	2000.00	ND
52	Cr	1	45	-0.077	ppb	#REF!	18.69	2000.00	ND
55	Mn	1	45	6.661	ppb	#REF!	3.09	2000.00	J
56	Fe	1	72	18.720	ppb	#REF!	1.26	10000.00	ND
59	Co	1	72	-0.091	ppb	#REF!	13.22	2000.00	ND
60	Ni	1	72	0.002	ppb	#REF!	5.26	2000.00	ND
63	Cu	1	72	0.081	ppb	#REF!	0.53	2000.00	ND
66	Zn	1	72	1.599	ppb	#REF!	2.06	2000.00	ND
75	As	1	72	0.000	ppb	#REF!	1.41	2000.00	ND
78	Se	1	72	-0.152	ppb	#REF!	28.27	2000.00	ND
88	Sr	2	115	4.253	ppb	#REF!	1.19	2000.00	J
95	Mo	2	115	0.491	ppb	#REF!	6.26	2000.00	ND
107	Ag	2	115	-0.053	ppb	#REF!	9.21	500.00	ND
111	Cd	2	115	-0.076	ppb	#REF!	30.17	2000.00	ND
118	Sn	2	115	-0.088	ppb	#REF!	12.96	2000.00	ND
121	Sb	2	115	4.146	ppb	#REF!	0.81	500.00	>RL
137	Ba	2	115	1.374	ppb	#REF!	1.44	2000.00	ND
205	Tl	2	209	-0.098	ppb	#REF!	13.22	2000.00	ND
208	Pb	2	209	-0.033	ppb	#REF!	4.22	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	1020.71	6.52	RHigh	1033.55	98.8	70 - 120	
45	Sc	1	127267.20	2.50		132067.77	96.4	70 - 120	
45	Sc	2	3746801.30	0.75		4317821.50	86.8	70 - 120	
72	Ge	1	84918.88	1.39		87257.11	97.3	70 - 120	
115	In	2	5124564.00	1.29		5593534.00	91.6	70 - 120	
209	Bi	2	4858938.00	0.09		5173223.50	93.9	70 - 120	

DT QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\037DT1.D\037DT1.D#

Date Acquired:	Aug 4 2014 02:22 pm	Sample Name:	**1407278-03A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TW
Operator:	SW	Bench Diln:	250.00
Last Cal. Update:	Aug 04 2014 12:42 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	250.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	3266.00	ppb	12.88	961.08	90 - 110	1699.1	
9	Be	2	45	-0.07	ppb	30.96	-0.07	90 - 110	470.3	
11	B	2	45	-0.92	ppb	1.71	1.49	90 - 110	-310.9	
23	Na	1	45	33.05	ppb	2.53	172.80	90 - 110	95.6	GOOD
24	Mg	1	45	25.64	ppb	6.86	123.40	90 - 110	103.9	GOOD
27	Al	1	45	2.46	ppb	27.86	8.45	90 - 110	145.5	
39	K	1	45	13.71	ppb	3.51	60.11	90 - 110	114.0	
44	Ca	2	45	493.80	ppb	0.85	2582.00	90 - 110	95.6	GOOD
47	Ti	1	45	0.06	ppb	114.55	0.19	90 - 110	154.0	
51	V	1	45	-0.08	ppb	10.33	-0.06	90 - 110	650.8	
52	Cr	1	45	-0.11	ppb	23.84	-0.08	90 - 110	743.7	
55	Mn	1	45	1.20	ppb	9.13	6.66	90 - 110	89.8	
56	Fe	1	72	3.30	ppb	13.64	18.72	90 - 110	88.2	
59	Co	1	72	-0.14	ppb	9.21	-0.09	90 - 110	744.2	
60	Ni	1	72	-0.12	ppb	3.83	0.00	90 - 110	######	
63	Cu	1	72	-0.13	ppb	3.56	0.08	90 - 110	-800.3	
66	Zn	1	72	0.30	ppb	4.42	1.60	90 - 110	93.0	GOOD
75	As	1	72	-0.15	ppb	2.98	0.00	90 - 110	######	
78	Se	1	72	-0.40	ppb	8.92	-0.15	90 - 110	1299.7	
88	Sr	2	115	0.79	ppb	4.71	4.25	90 - 110	92.9	GOOD
95	Mo	2	115	0.18	ppb	7.07	0.49	90 - 110	180.2	
107	Ag	2	115	-0.06	ppb	30.43	-0.05	90 - 110	532.1	
111	Cd	2	115	-0.07	ppb	45.87	-0.08	90 - 110	446.5	
118	Sn	2	115	-0.11	ppb	13.74	-0.09	90 - 110	646.7	
121	Sb	2	115	0.77	ppb	3.21	4.15	90 - 110	92.3	GOOD
137	Ba	2	115	0.21	ppb	6.80	1.37	90 - 110	75.0	
205	Tl	2	209	-0.12	ppb	19.85	-0.10	90 - 110	599.7	
208	Pb	2	209	-0.07	ppb	11.36	-0.03	90 - 110	1083.0	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	961.08	12.09	1033.55	93.0	70 -	120	
45	Sc	1		126523.05	2.31	132067.77	95.8	70 -	120	
45	Sc	2		3831249.80	0.68	4317821.50	88.7	70 -	120	
72	Ge	1		84503.09	2.48	87257.11	96.8	70 -	120	
115	In	2		5221031.00	0.47	5593534.00	93.3	70 -	120	
209	Bi	2		4904728.50	0.68	5173223.50	94.8	70 -	120	

PDS QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\046_PDS.D\046_PDS.D#

Date Acquired:	Aug 4 2014 03:17 pm	Sample Name:	**1407278-03A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TW
Operator:	SW	Bench Diln:	50.00
Last Cal. Update:	Aug 04 2014 12:42 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	50.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	63120.00	ppb	2.00	739.30	200	75-125	######	Fail
9	Be	2	45	208.40	ppb	1.18	-0.07	200	75-125	104.2	
11	B	2	45	198.00	ppb	0.54	1.49	200	75-125	98.3	
23	Na	1	45	5607.00	ppb	1.67	172.80	5000	75-125	108.7	
24	Mg	1	45	5492.00	ppb	1.98	123.40	5000	75-125	107.4	
27	Al	1	45	5125.00	ppb	2.43	8.45	5000	75-125	102.3	
39	K	1	45	5458.00	ppb	2.19	60.11	5000	75-125	108.0	
44	Ca	2	45	8127.00	ppb	1.92	2582.00	5000	75-125	110.9	
47	Ti	1	45	201.30	ppb	2.71	0.19	200	75-125	100.6	
51	V	1	45	191.60	ppb	1.97	-0.06	200	75-125	95.8	
52	Cr	1	45	196.50	ppb	2.07	-0.08	200	75-125	98.3	
55	Mn	1	45	201.90	ppb	2.36	6.66	200	75-125	97.6	
56	Fe	1	72	5129.00	ppb	1.59	18.72	5000	75-125	102.2	
59	Co	1	72	202.60	ppb	1.43	-0.09	200	75-125	101.3	
60	Ni	1	72	200.60	ppb	1.30	0.00	200	75-125	100.3	
63	Cu	1	72	198.20	ppb	1.50	0.08	200	75-125	99.1	
66	Zn	1	72	197.80	ppb	2.18	1.60	200	75-125	98.1	
75	As	1	72	192.20	ppb	1.54	0.00	200	75-125	96.1	
78	Se	1	72	192.90	ppb	4.39	-0.15	200	75-125	96.5	
88	Sr	2	115	202.60	ppb	1.60	4.25	200	75-125	99.2	
95	Mo	2	115	178.60	ppb	1.71	0.49	200	75-125	89.1	
107	Ag	2	115	184.60	ppb	1.38	-0.05	200	75-125	92.3	
111	Cd	2	115	186.90	ppb	0.91	-0.08	200	75-125	93.5	
118	Sn	2	115	195.50	ppb	1.38	-0.09	200	75-125	97.8	
121	Sb	2	115	175.20	ppb	1.43	4.15	200	75-125	85.5	
137	Ba	2	115	188.50	ppb	2.01	1.37	200	75-125	93.6	
205	Tl	2	209	199.80	ppb	0.50	-0.10	200	75-125	99.9	
208	Pb	2	209	194.90	ppb	1.04	-0.03	200	75-125	97.5	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	RHig	739.30	9.87	1033.55	71.5	70	-	120	
45	Sc	1		132344.52	1.77	132067.77	100.2	70	-	120	
45	Sc	2		3941358.00	0.45	4317821.50	91.3	70	-	120	
72	Ge	1		86298.35	1.17	87257.11	98.9	70	-	120	
115	In	2		5270313.50	0.13	5593534.00	94.2	70	-	120	
209	Bi	2		4921859.00	1.43	5173223.50	95.1	70	-	120	

CCV QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\047CCV1.D\047CCV1.D#

Date Acquired:	Aug 4 2014 03:23 pm	Sample Name:	**CCV1-140804**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2014 12:42 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	-3773.00	ppb	2.72	200.00	90 -	110	######	Fail
9	Be	2	45	207.70	ppb	0.93	200.00	90 -	110	103.9	
11	B	2	45	203.40	ppb	0.59	200.00	90 -	110	101.7	
23	Na	1	45	4939.00	ppb	1.58	5000.00	90 -	110	98.8	
24	Mg	1	45	4827.00	ppb	2.15	5000.00	90 -	110	96.5	
27	Al	1	45	4960.00	ppb	3.39	5000.00	90 -	110	99.2	
39	K	1	45	4938.00	ppb	2.07	5000.00	90 -	110	98.8	
44	Ca	2	45	4747.00	ppb	0.95	5000.00	90 -	110	94.9	
47	Ti	1	45	195.90	ppb	0.80	200.00	90 -	110	98.0	
51	V	1	45	195.40	ppb	2.11	200.00	90 -	110	97.7	
52	Cr	1	45	196.90	ppb	2.08	200.00	90 -	110	98.5	
55	Mn	1	45	201.10	ppb	2.81	200.00	90 -	110	100.6	
56	Fe	1	72	5073.00	ppb	2.68	5000.00	90 -	110	101.5	
59	Co	1	72	202.50	ppb	2.06	200.00	90 -	110	101.3	
60	Ni	1	72	205.20	ppb	2.08	200.00	90 -	110	102.6	
63	Cu	1	72	203.30	ppb	1.26	200.00	90 -	110	101.7	
66	Zn	1	72	198.10	ppb	1.86	200.00	90 -	110	99.1	
75	As	1	72	196.90	ppb	2.10	200.00	90 -	110	98.5	
78	Se	1	72	194.20	ppb	3.48	200.00	90 -	110	97.1	
88	Sr	2	115	201.40	ppb	1.47	200.00	90 -	110	100.7	
95	Mo	2	115	191.20	ppb	0.38	200.00	90 -	110	95.6	
107	Ag	2	115	194.10	ppb	0.62	200.00	90 -	110	97.1	
111	Cd	2	115	190.20	ppb	0.52	200.00	90 -	110	95.1	
118	Sn	2	115	196.60	ppb	0.74	200.00	90 -	110	98.3	
121	Sb	2	115	192.00	ppb	1.30	200.00	90 -	110	96.0	
137	Ba	2	115	193.90	ppb	1.81	200.00	90 -	110	97.0	
205	Tl	2	209	209.80	ppb	1.65	200.00	90 -	110	104.9	
208	Pb	2	209	201.00	ppb	1.34	200.00	90 -	110	100.5	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigh	890.47	5.36	1033.55	86.2	70 -	120	
45	Sc	1		134813.44	1.37	132067.77	102.1	70 -	120	
45	Sc	2		4053663.80	0.82	4317821.50	93.9	70 -	120	
72	Ge	1		87537.59	1.29	87257.11	100.3	70 -	120	
115	In	2		5461566.00	0.65	5593534.00	97.6	70 -	120	
209	Bi	2		4999833.50	1.66	5173223.50	96.6	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\049LCVL.D\049LCVL.D#

Date Acquired:	Aug 4 2014 03:35 pm	Sample Name:	**LCVL1-140804**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2014 12:42 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	-4754.00	ppb	6.55	5.00	70 -	130	######	Fail
9	Be	2	45	1.15	ppb	3.28	1.00	70 -	130	115.2	
11	B	2	45	21.13	ppb	1.01	20.00	70 -	130	105.7	
23	Na	1	45	85.59	ppb	1.65	100.00	70 -	130	85.6	
24	Mg	1	45	107.30	ppb	1.18	100.00	70 -	130	107.3	
27	Al	1	45	106.30	ppb	1.62	100.00	70 -	130	106.3	
39	K	1	45	99.32	ppb	3.59	100.00	70 -	130	99.3	
44	Ca	2	45	85.02	ppb	0.58	100.00	70 -	130	85.0	
47	Ti	1	45	5.25	ppb	6.29	5.00	70 -	130	104.9	
51	V	1	45	1.07	ppb	1.34	1.00	70 -	130	107.0	
52	Cr	1	45	5.44	ppb	1.36	5.00	70 -	130	108.9	
55	Mn	1	45	5.40	ppb	2.33	5.00	70 -	130	108.1	
56	Fe	1	72	107.10	ppb	1.55	100.00	70 -	130	107.1	
59	Co	1	72	5.46	ppb	0.83	5.00	70 -	130	109.1	
60	Ni	1	72	5.25	ppb	0.76	5.00	70 -	130	104.9	
63	Cu	1	72	5.40	ppb	1.13	5.00	70 -	130	108.1	
66	Zn	1	72	5.16	ppb	2.06	5.00	70 -	130	103.1	
75	As	1	72	5.16	ppb	3.00	5.00	70 -	130	103.3	
78	Se	1	72	4.54	ppb	4.56	5.00	70 -	130	90.7	
88	Sr	2	115	5.25	ppb	1.16	5.00	70 -	130	105.0	
95	Mo	2	115	4.98	ppb	2.64	5.00	70 -	130	99.6	
107	Ag	2	115	2.08	ppb	1.86	2.00	70 -	130	104.1	
111	Cd	2	115	1.07	ppb	7.63	1.00	70 -	130	106.8	
118	Sn	2	115	5.31	ppb	1.09	5.00	70 -	130	106.3	
121	Sb	2	115	2.30	ppb	4.86	2.00	70 -	130	115.1	
137	Ba	2	115	5.04	ppb	0.25	5.00	70 -	130	100.9	
205	Tl	2	209	1.05	ppb	2.45	1.00	70 -	130	104.8	
208	Pb	2	209	1.06	ppb	3.52	1.00	70 -	130	106.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	RHigh	806.72	5.25	1033.55	78.1	70 -	120	
45	Sc	1		131530.41	2.03	132067.77	99.6	70 -	120	
45	Sc	2		3965187.80	0.81	4317821.50	91.8	70 -	120	
72	Ge	1		86544.90	0.93	87257.11	99.2	70 -	120	
115	In	2		5279953.50	1.09	5593534.00	94.4	70 -	120	
209	Bi	2		4974881.00	1.58	5173223.50	96.2	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\050_CCB.D\050_CCB.D#

Date Acquired:	Aug 4 2014 03:41 pm	Sample Name:	**CCB1-140804**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2014 12:42 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	-3610.000	ppb	6.74	2.00	2.00	
9	Be	2	45	-0.024	ppb	30.91	0.10	0.30	
11	B	2	45	-0.413	ppb	0.73	10.00	10.00	
23	Na	1	45	-18.060	ppb	1.61	50.00	#####	
24	Mg	1	45	-0.510	ppb	3.94	50.00	#####	
27	Al	1	45	1.753	ppb	18.98	50.00	10.00	
39	K	1	45	-0.397	ppb	3.80	50.00	#####	
44	Ca	2	45	-14.860	ppb	1.17	50.00	#####	
47	Ti	1	45	0.001	ppb	49.99	4.00	3.00	
51	V	1	45	-0.043	ppb	8.96	4.00	3.00	
52	Cr	1	45	-0.041	ppb	8.89	2.00	2.00	
55	Mn	1	45	-0.073	ppb	9.09	2.00	3.00	
56	Fe	1	72	-0.337	ppb	11.31	50.00	50.00	
59	Co	1	72	-0.084	ppb	4.44	2.00	3.00	
60	Ni	1	72	-0.175	ppb	9.14	2.00	3.00	
63	Cu	1	72	-0.124	ppb	4.23	2.00	2.00	
66	Zn	1	72	-0.164	ppb	13.21	4.00	2.00	
75	As	1	72	-0.050	ppb	3.81	2.00	2.00	
78	Se	1	72	-0.129	ppb	13.13	0.60	2.00	
88	Sr	2	115	-0.010	ppb	10.53	4.00	3.00	
95	Mo	2	115	-0.053	ppb	9.47	2.00	2.00	
107	Ag	2	115	-0.030	ppb	23.55	0.40	1.00	
111	Cd	2	115	-0.055	ppb	40.18	0.40	0.30	
118	Sn	2	115	-0.047	ppb	16.29	4.00	3.00	
121	Sb	2	115	0.104	ppb	8.81	2.00	0.80	
137	Ba	2	115	-0.020	ppb	11.97	2.00	3.00	
205	Tl	2	209	-0.058	ppb	16.78	2.00	0.50	
208	Pb	2	209	-0.042	ppb	19.33	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	792.69	3.85	1033.55	76.7	70 - 120	
45	Sc	1	131828.95	1.68	132067.77	99.8	70 - 120	
45	Sc	2	4004397.00	0.18	4317821.50	92.7	70 - 120	
72	Ge	1	86676.46	1.80	87257.11	99.3	70 - 120	
115	In	2	5315663.00	0.76	5593534.00	95.0	70 - 120	
209	Bi	2	4962421.00	0.99	5173223.50	95.9	70 - 120	

DT QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\052DT1.D\052DT1.D#

Date Acquired:	Aug 4 2014 03:53 pm	Sample Name:	**1407292-07C SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TW
Operator:	SW	Bench Diln:	50.00
Last Cal. Update:	Aug 04 2014 12:42 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	50.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	8538.00	ppb	9.07	780.74	90 - 110	5467.9	
9	Be	2	45	-0.08	ppb	31.81	-0.06	90 - 110	681.8	
11	B	2	45	-0.48	ppb	2.37	4.18	90 - 110	-57.4	
23	Na	1	45	812.60	ppb	0.41	4155.00	90 - 110	97.8	GOOD
24	Mg	1	45	101.40	ppb	4.22	514.80	90 - 110	98.5	GOOD
27	Al	1	45	-0.43	ppb	11.16	3.55	90 - 110	-60.0	
39	K	1	45	16.81	ppb	2.61	72.45	90 - 110	116.0	
44	Ca	2	45	435.90	ppb	0.55	2273.00	90 - 110	95.9	GOOD
47	Ti	1	45	-0.12	ppb	173.20	-0.07	90 - 110	840.1	
51	V	1	45	-0.03	ppb	4.76	0.18	90 - 110	-88.8	
52	Cr	1	45	-0.08	ppb	15.34	0.00	90 - 110	######	
55	Mn	1	45	-0.10	ppb	10.14	0.14	90 - 110	-340.8	
56	Fe	1	72	-1.66	ppb	4.31	0.46	90 - 110	######	
59	Co	1	72	-0.12	ppb	17.38	-0.11	90 - 110	555.7	
60	Ni	1	72	0.31	ppb	5.18	-0.11	90 - 110	######	
63	Cu	1	72	-0.16	ppb	6.20	-0.14	90 - 110	579.1	
66	Zn	1	72	0.36	ppb	7.83	0.75	90 - 110	240.4	
75	As	1	72	-0.15	ppb	8.79	-0.03	90 - 110	2597.4	
78	Se	1	72	-0.34	ppb	5.80	-0.26	90 - 110	649.0	
88	Sr	2	115	1.76	ppb	1.40	8.84	90 - 110	99.6	GOOD
95	Mo	2	115	-0.22	ppb	11.89	-0.14	90 - 110	804.4	
107	Ag	2	115	-0.05	ppb	12.49	-0.05	90 - 110	524.6	
111	Cd	2	115	-0.07	ppb	2.88	-0.08	90 - 110	431.0	
118	Sn	2	115	-0.12	ppb	3.67	-0.08	90 - 110	762.3	
121	Sb	2	115	0.02	ppb	8.65	0.06	90 - 110	180.8	
137	Ba	2	115	3.21	ppb	5.08	16.89	90 - 110	95.1	GOOD
205	Tl	2	209	-0.12	ppb	14.11	-0.10	90 - 110	613.8	
208	Pb	2	209	-0.07	ppb	5.21	-0.05	90 - 110	696.3	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	780.74	8.39	1033.55	75.5	70 -	120	
45	Sc	1		132005.58	1.68	132067.77	100.0	70 -	120	
45	Sc	2		4041988.30	0.32	4317821.50	93.6	70 -	120	
72	Ge	1		87122.90	2.05	87257.11	99.8	70 -	120	
115	In	2		5345380.00	0.70	5593534.00	95.6	70 -	120	
209	Bi	2		4981873.00	0.71	5173223.50	96.3	70 -	120	

PDS QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\056_PDS.D\056_PDS.D#

Date Acquired:	Aug 4 2014 04:17 pm	Sample Name:	**1407292-07C PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TW
Operator:	SW	Bench Diln:	10.00
Last Cal. Update:	Aug 04 2014 12:42 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	10.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	106500.00	ppb	1.42	629.78	200	75-125	######	Fail
9	Be	2	45	207.00	ppb	0.86	-0.06	200	75-125	103.5	
11	B	2	45	201.90	ppb	0.19	4.18	200	75-125	98.9	
23	Na	1	45	9930.00	ppb	1.15	4155.00	5000	75-125	115.5	
24	Mg	1	45	5974.00	ppb	2.17	514.80	5000	75-125	109.2	
27	Al	1	45	5218.00	ppb	2.88	3.55	5000	75-125	104.3	
39	K	1	45	5555.00	ppb	2.44	72.45	5000	75-125	109.7	
44	Ca	2	45	7961.00	ppb	0.07	2273.00	5000	75-125	113.8	
47	Ti	1	45	201.20	ppb	0.92	-0.07	200	75-125	100.6	
51	V	1	45	193.30	ppb	2.29	0.18	200	75-125	96.6	
52	Cr	1	45	196.70	ppb	1.97	0.00	200	75-125	98.4	
55	Mn	1	45	197.80	ppb	2.80	0.14	200	75-125	98.8	
56	Fe	1	72	5178.00	ppb	3.08	0.46	5000	75-125	103.6	
59	Co	1	72	200.30	ppb	2.04	-0.11	200	75-125	100.2	
60	Ni	1	72	198.90	ppb	1.34	-0.11	200	75-125	99.5	
63	Cu	1	72	196.90	ppb	2.04	-0.14	200	75-125	98.5	
66	Zn	1	72	196.20	ppb	1.52	0.75	200	75-125	97.7	
75	As	1	72	192.40	ppb	1.98	-0.03	200	75-125	96.2	
78	Se	1	72	192.60	ppb	3.10	-0.26	200	75-125	96.4	
88	Sr	2	115	208.50	ppb	1.08	8.84	200	75-125	99.8	
95	Mo	2	115	178.30	ppb	0.31	-0.14	200	75-125	89.2	
107	Ag	2	115	187.80	ppb	0.19	-0.05	200	75-125	93.9	
111	Cd	2	115	188.60	ppb	0.59	-0.08	200	75-125	94.3	
118	Sn	2	115	196.50	ppb	1.16	-0.08	200	75-125	98.3	
121	Sb	2	115	174.30	ppb	1.01	0.06	200	75-125	87.1	
137	Ba	2	115	204.90	ppb	0.61	16.89	200	75-125	94.0	
205	Tl	2	209	201.20	ppb	0.45	-0.10	200	75-125	100.6	
208	Pb	2	209	196.70	ppb	0.65	-0.05	200	75-125	98.4	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	RHig	629.78	8.74	1033.55	60.9	70	-	120	ISFail
45	Sc	1		129341.49	1.63	132067.77	97.9	70	-	120	
45	Sc	2		3954764.30	0.43	4317821.50	91.6	70	-	120	
72	Ge	1		85245.90	1.16	87257.11	97.7	70	-	120	
115	In	2		5241392.00	1.48	5593534.00	93.7	70	-	120	
209	Bi	2		4802430.50	1.12	5173223.50	92.8	70	-	120	

CCV QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\057CCV1.D\057CCV1.D#

Date Acquired:	Aug 4 2014 04:23 pm	Sample Name:	**CCV2-140804**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2014 12:42 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	-4387.00	ppb	14.75	200.00	90 -	110	######	Fail
9	Be	2	45	206.80	ppb	1.52	200.00	90 -	110	103.4	
11	B	2	45	201.50	ppb	1.31	200.00	90 -	110	100.8	
23	Na	1	45	4917.00	ppb	2.39	5000.00	90 -	110	98.3	
24	Mg	1	45	4798.00	ppb	2.52	5000.00	90 -	110	96.0	
27	Al	1	45	4919.00	ppb	2.68	5000.00	90 -	110	98.4	
39	K	1	45	4920.00	ppb	1.48	5000.00	90 -	110	98.4	
44	Ca	2	45	4758.00	ppb	1.37	5000.00	90 -	110	95.2	
47	Ti	1	45	195.50	ppb	0.83	200.00	90 -	110	97.8	
51	V	1	45	195.00	ppb	2.73	200.00	90 -	110	97.5	
52	Cr	1	45	197.00	ppb	2.78	200.00	90 -	110	98.5	
55	Mn	1	45	200.90	ppb	1.90	200.00	90 -	110	100.5	
56	Fe	1	72	5050.00	ppb	2.20	5000.00	90 -	110	101.0	
59	Co	1	72	201.80	ppb	1.86	200.00	90 -	110	100.9	
60	Ni	1	72	205.70	ppb	1.25	200.00	90 -	110	102.9	
63	Cu	1	72	203.90	ppb	1.05	200.00	90 -	110	102.0	
66	Zn	1	72	199.90	ppb	1.62	200.00	90 -	110	100.0	
75	As	1	72	196.80	ppb	2.21	200.00	90 -	110	98.4	
78	Se	1	72	190.80	ppb	2.28	200.00	90 -	110	95.4	
88	Sr	2	115	200.80	ppb	1.54	200.00	90 -	110	100.4	
95	Mo	2	115	191.00	ppb	0.73	200.00	90 -	110	95.5	
107	Ag	2	115	191.60	ppb	1.11	200.00	90 -	110	95.8	
111	Cd	2	115	189.30	ppb	1.94	200.00	90 -	110	94.7	
118	Sn	2	115	195.00	ppb	2.08	200.00	90 -	110	97.5	
121	Sb	2	115	191.40	ppb	1.95	200.00	90 -	110	95.7	
137	Ba	2	115	190.50	ppb	1.83	200.00	90 -	110	95.3	
205	Tl	2	209	210.30	ppb	1.70	200.00	90 -	110	105.2	
208	Pb	2	209	199.80	ppb	1.89	200.00	90 -	110	99.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	761.74	0.74	1033.55	73.7	70 -	120		
45	Sc	1	133134.25	2.13	132067.77	100.8	70 -	120		
45	Sc	2	4076277.30	0.43	4317821.50	94.4	70 -	120		
72	Ge	1	86784.61	1.61	87257.11	99.5	70 -	120		
115	In	2	5433905.50	1.49	5593534.00	97.1	70 -	120		
209	Bi	2	4921536.00	1.09	5173223.50	95.1	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\058_CCB.D\058_CCB.D#

Date Acquired:	Aug 4 2014 04:29 pm	Sample Name:	**CCB2-140804**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2014 12:42 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	-4056.000	ppb	6.78	2.00	2.00	
9	Be	2	45	0.129	ppb	9.72	0.10	0.30	Failsoil
11	B	2	45	1.833	ppb	4.09	10.00	10.00	
23	Na	1	45	-4.773	ppb	3.29	50.00	#####	
24	Mg	1	45	5.713	ppb	38.49	50.00	#####	
27	Al	1	45	7.530	ppb	23.96	50.00	10.00	
39	K	1	45	7.398	ppb	2.57	50.00	#####	
44	Ca	2	45	-4.208	ppb	1.00	50.00	#####	
47	Ti	1	45	0.103	ppb	62.46	4.00	3.00	
51	V	1	45	0.173	ppb	35.75	4.00	3.00	
52	Cr	1	45	0.152	ppb	37.62	2.00	2.00	
55	Mn	1	45	0.319	ppb	35.02	2.00	3.00	
56	Fe	1	72	6.399	ppb	36.36	50.00	50.00	
59	Co	1	72	0.136	ppb	43.57	2.00	3.00	
60	Ni	1	72	0.095	ppb	24.22	2.00	3.00	
63	Cu	1	72	0.096	ppb	26.45	2.00	2.00	
66	Zn	1	72	0.320	ppb	8.32	4.00	2.00	
75	As	1	72	0.301	ppb	21.79	2.00	2.00	
78	Se	1	72	0.293	ppb	18.71	0.60	2.00	
88	Sr	2	115	0.146	ppb	10.23	4.00	3.00	
95	Mo	2	115	0.616	ppb	9.25	2.00	2.00	
107	Ag	2	115	0.120	ppb	20.48	0.40	1.00	
111	Cd	2	115	0.070	ppb	20.06	0.40	0.30	
118	Sn	2	115	0.195	ppb	10.92	4.00	3.00	
121	Sb	2	115	0.786	ppb	3.98	2.00	0.80	
137	Ba	2	115	0.150	ppb	20.08	2.00	3.00	
205	Tl	2	209	0.262	ppb	10.71	2.00	0.50	
208	Pb	2	209	0.139	ppb	16.05	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	853.69	5.05	1033.55	82.6	70 - 120	
45	Sc	1		132225.47	2.36	132067.77	100.1	70 - 120	
45	Sc	2		4006315.00	1.34	4317821.50	92.8	70 - 120	
72	Ge	1		87234.46	1.81	87257.11	100.0	70 - 120	
115	In	2		5320143.00	1.15	5593534.00	95.1	70 - 120	
209	Bi	2		4905140.50	0.47	5173223.50	94.8	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\059LCVL.D\059LCVL.D#

Date Acquired:	Aug 4 2014 04:35 pm	Sample Name:	**LCVL2-140804**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2014 12:42 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	-5620.00	ppb	6.80	5.00	70 -	130	######	Fail
9	Be	2	45	1.15	ppb	3.85	1.00	70 -	130	114.8	
11	B	2	45	20.71	ppb	1.16	20.00	70 -	130	103.6	
23	Na	1	45	73.69	ppb	0.66	100.00	70 -	130	73.7	
24	Mg	1	45	100.40	ppb	3.65	100.00	70 -	130	100.4	
27	Al	1	45	105.50	ppb	3.61	100.00	70 -	130	105.5	
39	K	1	45	93.01	ppb	3.20	100.00	70 -	130	93.0	
44	Ca	2	45	83.81	ppb	0.81	100.00	70 -	130	83.8	
47	Ti	1	45	5.27	ppb	14.82	5.00	70 -	130	105.3	
51	V	1	45	0.98	ppb	6.60	1.00	70 -	130	98.0	
52	Cr	1	45	5.21	ppb	1.30	5.00	70 -	130	104.1	
55	Mn	1	45	5.20	ppb	3.40	5.00	70 -	130	103.9	
56	Fe	1	72	103.70	ppb	0.54	100.00	70 -	130	103.7	
59	Co	1	72	5.24	ppb	2.49	5.00	70 -	130	104.9	
60	Ni	1	72	5.12	ppb	1.13	5.00	70 -	130	102.4	
63	Cu	1	72	5.20	ppb	1.76	5.00	70 -	130	104.1	
66	Zn	1	72	4.69	ppb	6.35	5.00	70 -	130	93.8	
75	As	1	72	5.07	ppb	2.47	5.00	70 -	130	101.3	
78	Se	1	72	4.83	ppb	5.86	5.00	70 -	130	96.6	
88	Sr	2	115	5.28	ppb	1.14	5.00	70 -	130	105.6	
95	Mo	2	115	4.97	ppb	1.28	5.00	70 -	130	99.3	
107	Ag	2	115	2.13	ppb	2.72	2.00	70 -	130	106.3	
111	Cd	2	115	1.03	ppb	5.57	1.00	70 -	130	103.2	
118	Sn	2	115	5.24	ppb	0.96	5.00	70 -	130	104.9	
121	Sb	2	115	2.44	ppb	3.12	2.00	70 -	130	121.9	
137	Ba	2	115	5.19	ppb	1.29	5.00	70 -	130	103.8	
205	Tl	2	209	1.09	ppb	1.84	1.00	70 -	130	108.6	
208	Pb	2	209	1.09	ppb	1.45	1.00	70 -	130	108.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2 RHigl	800.58	6.69	1033.55	77.5	70 -	120	
45	Sc	1	133556.98	1.58	132067.77	101.1	70 -	120	
45	Sc	2	4017873.30	0.80	4317821.50	93.1	70 -	120	
72	Ge	1	87860.18	3.57	87257.11	100.7	70 -	120	
115	In	2	5320103.50	2.06	5593534.00	95.1	70 -	120	
209	Bi	2	4924846.00	0.94	5173223.50	95.2	70 -	120	

ICP-MS3_140804B
For

DHL Work Order
1407278

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS3_140804B SOP: Metals-ICP-MS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			X
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			X
P/A Factor	Before ICAL	Increasing trend	X			
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			X
ICSAB (N/A for Method 200.8)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLS and ICSA/ICSAB is N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			X
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%			X	
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%	X			
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%			X	
Lab Control Sample Dup (LCSD)	Every Batch	80-120%			X	
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)			X	
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%			X	
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)			X	
Dilution Test (SD) - RPD	Every Batch	10			X	
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)			X	

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			X
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> 5% of highest standard	X			
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality	X			X
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

TECHNICAL DIRECTOR / QA MANAGER APPROVAL
SIGNATURE AND DATE STAMP:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> MDL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag data / Case narrative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

See notes in Run Log

DILUTIONS ONLY - NO BATCH QC INCLUDED. SEE ICPMS3_140801A.

Analyst: Karyn Lane Date of Completion: 8/4/2014

Second-Level Review: Evelyn Lane Ferrero Reviewer Date Stamp:

REVIEWED
By Evelyn Ferrero at 10:16:51 AM, 8/5/2014

DHL Analytical, Inc.

Run ID: **ICP-MS3_140804B** **Run No.:** 74687

Analytical Run Date: 8/4/2014 **InstrumentID:** ICP-MS3

Analyst: Karyn Lane

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TW	CAL	R74687	8/4/2014 11:56:00 AM		
1/20 ppb STD.	1	ICPMS_TW	CAL	R74687	8/4/2014 12:03:00 PM		
10/200 ppb STD.	1	ICPMS_TW	CAL	R74687	8/4/2014 12:09:00 PM		
50/1000 ppb STD.	1	ICPMS_TW	CAL	R74687	8/4/2014 12:15:00 PM		
100/2000 ppb STD.	1	ICPMS_TW	CAL	R74687	8/4/2014 12:21:00 PM		
250/5000 ppb STD.	1	ICPMS_TW	CAL	R74687	8/4/2014 12:27:00 PM		
500/10000 ppb STD.	1	ICPMS_TW	CAL	R74687	8/4/2014 12:33:00 PM		
2000/25000 ppb STD.	1	ICPMS_TW	CAL	R74687	8/4/2014 12:39:00 PM		
ICSA-140804	1	ICPMS_TW	ICSA	R74687	8/4/2014 1:33:00 PM		
ICSAB-140804	1	ICPMS_TW	ICSB	R74687	8/4/2014 1:39:00 PM		
ICV1-140804	1	6020A_W	ICV	R74687	8/4/2014 1:58:00 PM		
ICB1-140804	1	6020A_W	ICB	R74687	8/4/2014 2:04:00 PM		
ILCVL-140804	1	6020A_W	LCVL	R74687	8/4/2014 2:10:00 PM		
1407278-05A	10	6020A_W	SAMP	64976	8/4/2014 2:28:00 PM		
1407278-12A	10	6020A_W	SAMP	64976	8/4/2014 2:34:00 PM		
CCV1-140804	1	6020A_W	CCV	R74687	8/4/2014 3:23:00 PM		
LCVL1-140804	1	6020A_W	LCVL	R74687	8/4/2014 3:35:00 PM		
CCB1-140804	1	6020A_W	CCB	R74687	8/4/2014 3:41:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140729	ICPMS CCV 200/5000 PPB		10/27/2014
MET-H2CAL-1407	ICPMS High Cal2 2000ppb std 8		10/15/2014
MET-HCAL-14071	ICPMS High Cal 500ppb/10ppm s		10/15/2014
MET-ICV-140729	ICPMS ICV 100 ppb		10/27/2014
MET-IS-140718	INTERNAL STANDARD 1 PPM		10/16/2014
MET-L2CAL-14071	ICPMS Low Cal2 1/20ppb std 2		10/15/2014
MET-LCAL-140717	ICPMS Low Cal 10/200ppb std 3		10/15/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		10/15/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		10/15/2014
MET-MCAL-14071	ICPMS Mid Cal 250/5000ppb std		10/15/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140715	250 PPM Naturals+Al+Fe PDS		10/13/2014
MET-PDS-140717-	10 PPM CUSTOM PDS SOLUTI		10/15/2014
MET-PDS-140717-	10 PPM Ag+Sb PDS		10/15/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		10/16/2014

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		CALBEG	Start of CALIB						
2	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
3	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
4	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
5	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
6	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		1/20 ppb STD.	CAL ICPMS_TW	Level 2				
7	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		10/200 ppb STD.	CAL ICPMS_TW	Level 3				
8	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		50/1000 ppb STD.	CAL ICPMS_TW	Level 4				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		100/2000 ppb STD.	CAL ICPMS_TW	Level 5				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		250/5000 ppb STD.	CAL ICPMS_TW	Level 6				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		500/10000 ppb STD.	CAL ICPMS_TW	Level 7				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
15	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		1/20 ppb STD.	CAL ICPMS_TW	Level 2				
16	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		10/200 ppb STD.	CAL ICPMS_TW	Level 3				
17	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		50/1000 ppb STD.	CAL ICPMS_TW	Level 4				
18	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		100/2000 ppb STD.	CAL ICPMS_TW	Level 5				
19	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		250/5000 ppb STD.	CAL ICPMS_TW	Level 6				
20	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		500/10000 ppb STD.	CAL ICPMS_TW	Level 7				
21	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		2000/25000 ppb STD.	CAL ICPMS_TW	Level 8				
22	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
23	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
24		Keyword		CALEND	End of CALIB						

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
25		Keyword		ICSBEG	Start of ICS						
26	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-140804	ICSAICPMS_TW	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-140804	ICSBICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CAL ICPMS_TW	1.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		RINSE	CAL ICPMS_TW	1.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CAL ICPMS_TW	1.000				
31	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		RINSE	CAL ICPMS_TW	1.000				
32	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-140804	ICSAICPMS_TW	1.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-140804	ICSBICPMS_TW	1.000				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CAL ICPMS_TW	1.000				
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		RINSE	CAL ICPMS_TW	1.000				
36		Keyword		ICSEND	End of ICS						
37		Keyword		SMPLBEG	Start of SMPL						
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-140804	ICV ICPMS_TW	1.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	2101		ICB1-140804	ICB ICPMS_TW	1.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		ILCVL-140804	LCVL6020A_W	1.000				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2201		1407278-03A	SAMPICPMS_TW	50.00				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2202		1407278-03A SD	SD_ICPMS_TW	250.0				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2203		1407278-05A	SAMP6020A_W	10.00				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2204		1407278-12A	SAMP6020A_W	10.00				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2205		1407292-01C	SAMPICPMS_TW	50.00				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2206		1407292-02C	SAMPICPMS_TW	10.00				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2207		1407292-03C	SAMPICPMS_TW	50.00				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2208		1407292-04C	SAMPICPMS_TW	50.00				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
49	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2209		1407292-05C	SAMPICPMS_TW	50.00				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2210		1407292-06C	SAMPICPMS_TW	50.00				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2211		1407278-03A PDS	PDS ICPMS_TW	50.00				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-140804	CCV ICPMS_TW	1.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		CCB1-140804	CCB ICPMS_TW	1.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL1-140804	LCVL6020A_W	1.000				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-140804	CCB ICPMS_TW	1.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2301		1407292-07C	SAMPICPMS_TW	10.00				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2302		1407292-07C SD	SD_ICPMS_TW	50.00				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2303		1407292-08C	SAMPICPMS_TW	100.0				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2304		1407292-09C	SAMPICPMS_TW	100.0				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2305		1407292-10C	SAMPICPMS_TW	10.00				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2306		1407292-07C PDS	PDS ICPMS_TW	10.00				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-140804	CCV ICPMS_TW	1.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB2-140804	CCB ICPMS_TW	1.000				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2511		LCVL2-140804	LCVL6020A_W	1.000				
65		Keyword		StandBy							
66		Keyword		SMPLEND	End of SMPL						
67		Keyword		End	End of Sequence						
68		Keyword		CCVBEG	Start of CCV						
69		Keyword		CCVEND	End of CCV						
70		Keyword		BLKBEG	Start of BLANK						
71		Keyword		BLKEND	End of BLANK						
72		Keyword		ERRBEG	Start of ERRTERM						
73		Keyword		ERREND	End of ERRTERM						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/1/2014 8:00:00 AM**
Digestion: **Start: 8/1/2014 8:30:00 AM / Stop: 8/1/2014 1:26:00 PM**
Prep End Date: **8/1/2014 1:27:08 PM**

Prep Batch **64976** Prep Code: **3005A** Technician: **Matthew Kuhaneck**

Prep Factor Units: **mL/mL**

Equipment List
Thermometer #71
Hot Block #4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1407278-01A	Aqueous		50	50	1.000	1 of 1
1407278-02A	Aqueous		50	50	1.000	1 of 1
1407278-03A	Aqueous		50	50	1.000	1 of 3
1407278-03A MS	Aqueous		50	50	1.000	of
1407278-03A MSD	Aqueous		50	50	1.000	of
1407278-03A PDS	Aqueous		50	50	1.000	of
1407278-03A SD	Aqueous		50	50	1.000	of
1407278-04A	Aqueous		50	50	1.000	1 of 1
1407278-05A	Aqueous		50	50	1.000	1 of 1
1407278-06A	Aqueous		50	50	1.000	1 of 1
1407278-07A	Aqueous		50	50	1.000	1 of 1
1407278-08A	Aqueous		50	50	1.000	1 of 1
1407278-09A	Aqueous		50	50	1.000	1 of 1
1407278-10A	Aqueous		50	50	1.000	1 of 1
1407278-11A	Aqueous		50	50	1.000	1 of 1
1407278-12A	Aqueous		50	50	1.000	1 of 1
1407278-13A	Aqueous		50	50	1.000	1 of 1
1407292-01C	Aqueous		50	50	1.000	1 of 1
1407292-02C	Aqueous		50	50	1.000	1 of 1
1407292-03C	Aqueous		50	50	1.000	1 of 1
1407292-04C	Aqueous		50	50	1.000	1 of 1
1407292-05C	Aqueous		50	50	1.000	1 of 1
1407292-06C	Aqueous		50	50	1.000	1 of 1
LCS-64976	Aqueous		50	50	1.000	of
LCSD-64976	Aqueous		50	50	1.000	of
MB-64976	Aqueous		50	50	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
8095	Hydrochloric Acid (Trace Metal Grade)	1	ml	07/05/2016
8144	Digestion Vessels	69	ml	11/10/2014
8198	Nitric Acid (Trace Metal Grade)	1	ml	12/24/2015

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-140109-01	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/06/2015
MET-140109-02	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/10/2015
MET-SPIKE-140716-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	08/16/2014
MET-SPIKE-140724-1	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MS	0.2	08/24/2014
MET-SPIKE-140724-2	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	08/24/2014

REVIEWED
By Evelyn Ferrero at 2:46:55 PM, 8/4/2014

Calibration Summary Report

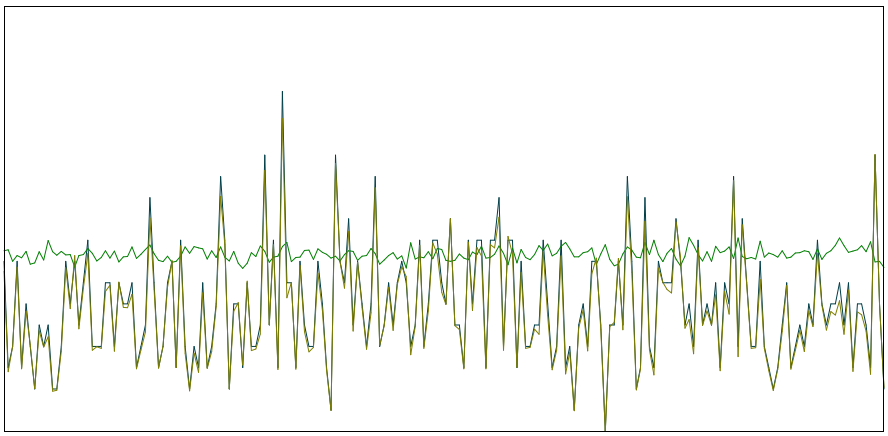
Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3Fe.C
Last Update: Aug 04 2014 01:45 pm
Cal Type: Y=aX+[blank]

Standard	Date Acquired	File
BLANK STD 1	Aug 4 2014 11:56 am	c:\icpchem\1\data\14h04k02.b\013calb.d\
1/20 ppb STD.	Aug 4 2014 12:03 pm	c:\icpchem\1\data\14h04k02.b\014cals.d\
10/200 ppb STD.	Aug 4 2014 12:09 pm	c:\icpchem\1\data\14h04k02.b\015cals.d\
50/1000 ppb STD.	Aug 4 2014 12:15 pm	c:\icpchem\1\data\14h04k02.b\016cals.d\
100/2000 ppb STD.	Aug 4 2014 12:21 pm	c:\icpchem\1\data\14h04k02.b\017cals.d\
250/5000 ppb STD.	Aug 4 2014 12:27 pm	c:\icpchem\1\data\14h04k02.b\018cals.d\

Element Name	Corr Coef	Coef A	Coef B	Lvl 2	Lvl 6	Lvl 7	L7 %R	Lvl 8	L8 %R
Li	0.8174	1.41E-006	0.02378	-1214.00	-1,092	24		2385	
Be	0.9998	0.07662	0.009423	0.97	257	496	99%	--------	######
B	1.0000	0.04628	0.1686	0.34	255	517	103%	1,995	100%
Na	1.0000	0.2097	40.38	26.34	4,988	10,030	100%	24,990	100%
Mg	0.9999	0.09508	0.4414	19.27	4,898	9,670	97%	25,160	101%
Al	1.0000	0.02727	0.1741	18.74	4,980	10,010	100%	--------	######
K	1.0000	0.05809	8.934	18.80	4,936	9,821	98%	25,090	100%
Ca	0.9998	0.007019	0.7114	50.67	4,819	10,220	102%	24,950	100%
Ti	1.0000	0.02695	0.00401	0.99	252	498	100%	2,000	100%
V	1.0000	1.127	0.3348	0.95	250	495	99%	2,001	100%
Cr	1.0000	1.446	0.258	0.92	251	495	99%	2,001	100%
Mn	1.0000	0.5828	0.1541	0.93	256	507	101%	1,997	100%
Fe	0.9999	1.615	5.967	18.35	5,116	9,920	99%	--------	######
Co	1.0000	3.663	0.595	0.99	256	505	101%	1,998	100%
Ni	1.0000	1.031	0.498	1.11	258	510	102%	1,996	100%
Cu	1.0000	2.872	1.322	0.96	257	506	101%	1,997	100%
Zn	1.0000	0.3368	0.6054	1.81	257	511	102%	1,996	100%
As	1.0000	0.2126	0.09846	0.91	252	505	101%	1,999	100%
Se	1.0000	0.01	0.01009	0.61	248	503	101%	2,000	100%
Sr	0.9999	0.2777	0.04103	1.00	260	523	105%	1,993	100%
Mo	0.9999	0.05317	0.02405	0.83	245	503	101%	--------	######
Ag	0.9998	0.1335	0.01116	0.97	243	504	101%	--------	######
Cd	1.0000	0.02864	0.003738	0.84	243	496	99%	2,002	100%
Sn	0.9998	0.08197	0.01903	0.96	251	538	108%	1,990	100%
Sb	0.9996	0.1188	0.0128	0.92	239	507	101%	--------	######
Ba	1.0000	0.04198	0.00556	0.94	244	498	100%	2,002	100%
Tl	0.9999	0.2837	0.04888	0.91	258	520	104%	1,994	100%
Pb	0.9999	0.388	0.05043	0.93	254	520	104%	1,994	100%

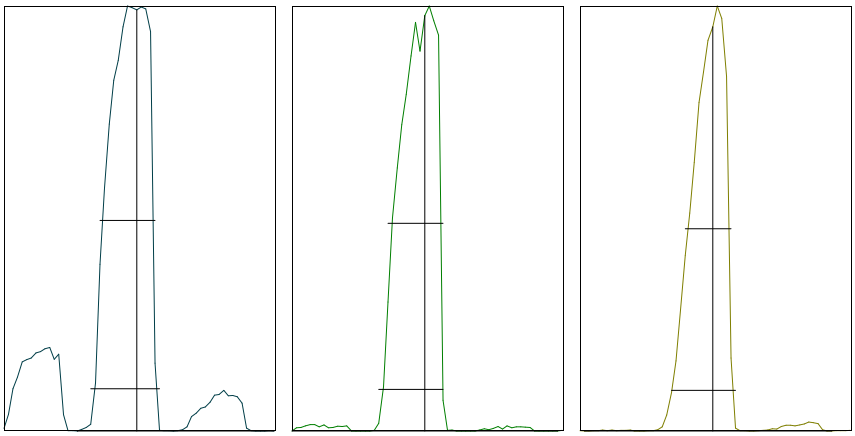
Tune Report

Tune File : He.U
Comment :



Integration Time: 0.1000 sec
Sampling Period: 0.2000 sec
n: 200
Oxide: 156/140 0.509%
Doubly Charged: 70/140 1.566%

m/z	Range	Count	Mean	RSD%	Background
51	20	2.0	5.9	44.66	0.50
59	5,000	1929.0	2084.9	3.53	0.60
51/59	1	0.104%	0.283%	44.41	



m/z:	59	89	205
Height:	2,056	1,144	5,081
Axis:	59.00	89.00	205.00
W-50%:	0.60	0.60	0.50
W-10%:	0.7500	0.700	0.700

Integration Time: 0.1000 sec
Acquisition Time: 22.5600 sec

Y axis : Linear

Generated : Aug 04, 2014 10:15:04
Printed : Aug 04, 2014 10:15:06

Tune Report

Tune File : He.U
Comment :

Tuning Parameters

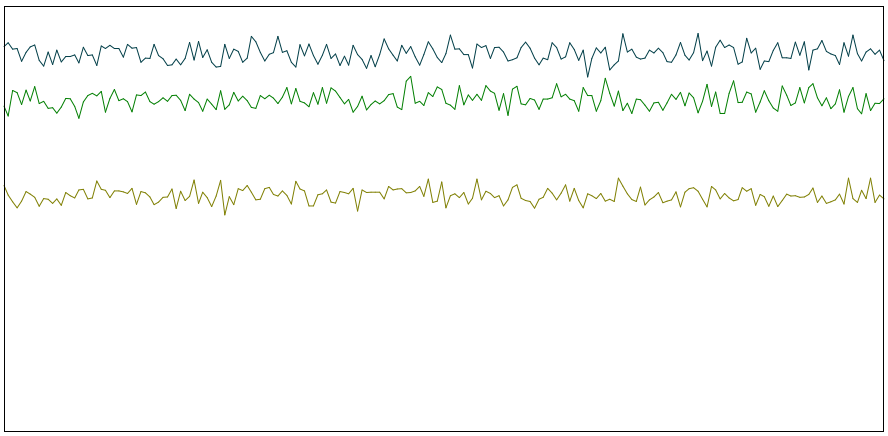
===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1550	W	Extract 1	:	0	V	AMU Gain	:	121	
RF Matching	:	1.7	V	Extract 2	:	-130	V	AMU Offset	:	123	
Smpl Depth	:	10	mm	Omega Bias-ce	:	-16	V	Axis Gain	:	0.9993	
Torch-H	:	-0.2	mm	Omega Lens-ce	:	1	V	Axis Offset	:	-0.06	
Torch-V	:	1.1	mm	Cell Entrance	:	-40	V	QP Bias	:	-16.8	V
Carrier Gas	:	1.2	L/min	QP Focus	:	-9	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1700	V
Sample Pump	:	---	rps	OctP RF	:	200	V	Pulse HV	:	1230	V
S/C Temp	:	2	degC	OctP Bias	:	-16.8	V				

===Reaction Cell===

Reaction Mode	:	ON									
H2 Gas	:	0	mL/min	He Gas	:	4.7	mL/min	Optional Gas	:	---	%

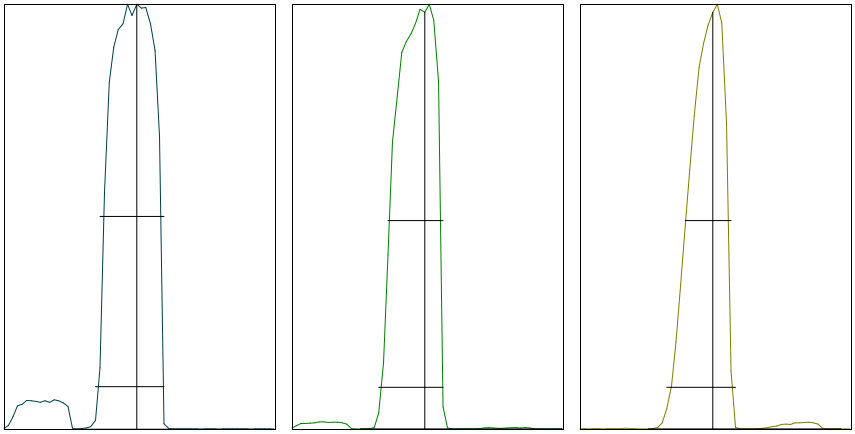
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.8200 sec	
n:	200	
Oxide:	156/140	1.015%
Doubly Charged:	70/140	1.767%

m/z	Range	Count	Mean	RSD%	Background
7	10,000	8721.0	8888.2	2.17	16.80
89	20,000	15658.0	15609.4	2.45	13.60
205	20,000	10935.0	11098.4	2.95	23.60
156/140	2	1.004%	0.997%	9.49	
70/140	5	1.596%	1.737%	7.16	
23	100,000	88486.0	88607.3	1.02	14.00
80	500,000	318933.0	317973.2	0.42	15.40



m/z:	7	89	205
Height:	8,956	15,707	11,325
Axis:	7.00	89.00	205.00
W-50%:	0.70	0.60	0.50
W-10%:	0.7500	0.700	0.7500

Integration Time:	0.1000 sec
Acquisition Time:	22.7600 sec

Y axis : Linear

Generated : Aug 04, 2014 10:11:03
Printed : Aug 04, 2014 10:11:05

Tune Report

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1550	W	Extract 1	:	0	V	AMU Gain	:	121	
RF Matching	:	1.7	V	Extract 2	:	-130	V	AMU Offset	:	123	
Smpl Depth	:	10	mm	Omega Bias-ce	:	-16	V	Axis Gain	:	0.9993	
Torch-H	:	-0.2	mm	Omega Lens-ce	:	1	V	Axis Offset	:	-0.06	
Torch-V	:	1.1	mm	Cell Entrance	:	-40	V	QP Bias	:	-2.5	V
Carrier Gas	:	1.2	L/min	QP Focus	:	2	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1700	V
Sample Pump	:	---	rps	OctP RF	:	200	V	Pulse HV	:	1230	V
S/C Temp	:	2	degC	OctP Bias	:	-6	V				

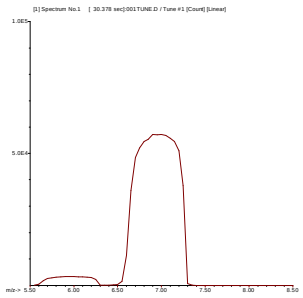
===Reaction Cell===											
Reaction Mode	:	OFF									
H2 Gas	:	0	mL/min	He Gas	:	0	mL/min	Optional Gas	:	---	%

6020 QC Tune Report

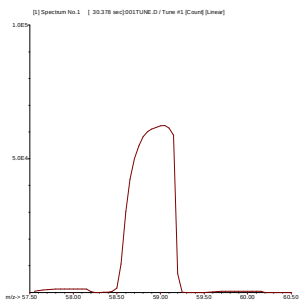
Data File: C:\ICPCHEM\1\DATA\14H04k01.B\001TUNE.D
Date Acquired: Aug 4 2014 10:31 am
Acq. Method: TN6020.M
Operator: SW
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

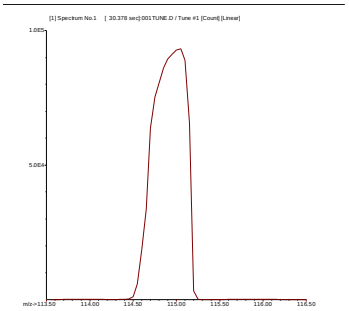
Element	Actual	Required	Flag
7 Li	1.24	5.00	
59 Co	1.69	5.00	
115 In	3.75	5.00	
205 Tl	0.83	5.00	



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: 0.55
Required: 0.90
Flag:



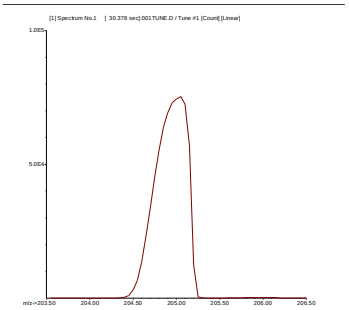
115 In

Mass Calib.

Actual:	115.00	
Required:	114.90 -	115.10
Flag:		

Peak Width

Actual:	0.55
Required:	0.90
Flag:	



205 Tl

Mass Calib.

Actual:	205.00	
Required:	204.90 -	205.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	

P/A Factor Tuning Report

Acquired:Aug 4 2014 10:18 am

Mass[amu]	Element	P/A Factor
6	Li	0.073637
23	Na	0.089900
24	Mg	0.093852
27	Al	0.097071
39	K	0.097260
44	Ca	Sensitivity too low
45	Sc	0.098226
47	Ti	Sensitivity too low
51	V	0.100355
52	Cr	0.103243
55	Mn	0.104780
59	Co	0.108255
60	Ni	0.110162
63	Cu	0.112118
66	Zn	0.111704
72	Ge	0.110512
75	As	0.109303
78	Se	Sensitivity too low
88	Sr	0.110568
95	Mo	0.109359
106	(Cd)	0.115560
107	Ag	Sensitivity too low
108	(Cd)	0.115797
111	Cd	0.116886
115	In	0.116629
118	Sn	0.116406
121	Sb	0.116193
137	Ba	Sensitivity too low
205	Tl	0.125021
206	(Pb)	0.124685
207	(Pb)	0.124781
208	Pb	0.125006
209	Bi	0.124879
238		0.124792

===Detector Parameters===
  Discriminator: 8.0 mV
      Analog HV: 1700 V
       Pulse HV: 1230 V

Calibration Blank QC Report

Acq. Method: DHL_3Fe.M Sample Name: BLANK STD 1
Operator: SW Instrument: ICPMS3
Last Cal. Update: Aug 04 2014 11:42 am
Date Acquired: Aug 4 2014 11:56 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	1033.55	P	29.23	2.83
7	Li	2	45	513.37	P	34.80	6.78
9	Be	2	45	203.34	P	52.07	25.61
11	B	2	45	3640.67	P	109.00	2.99
23	Na	1	45	26654.68	P	41.65	0.16
24	Mg	1	45	292.24	P	60.77	20.80
27	Al	1	45	115.11	P	13.42	11.66
39	K	1	45	5900.54	P	214.60	3.64
44	Ca	2	45	15357.77	P	121.70	0.79
45	Sc	1	---	132067.80	P	3016.00	2.28
45	Sc	2	---	4317822.00	A	16990.00	0.39
47	Ti	1	45	2.67	P	1.33	49.99
51	V	1	45	220.89	P	11.10	5.03
51	V	2	---		P		
52	Cr	1	45	170.67	P	26.23	15.37
55	Mn	1	45	101.78	P	7.34	7.22
56	Fe	1	72	2604.90	P	213.00	8.18
59	Co	1	72	259.56	P	7.34	2.83
60	Ni	1	72	217.34	P	14.85	6.83
60	Ni	2	---		P		
63	Cu	1	72	576.47	P	24.20	4.20
63	Cu	2	---		P		
66	Zn	1	72	264.01	P	16.38	6.20
66	Zn	2	---		P		
72	Ge	1	---	87257.11	P	1147.00	1.31
72	Ge	2	---		P		
75	As	1	72	42.96	P	1.30	3.03
78	Se	1	72	4.41	P	1.19	26.96
88	Sr	2	###	1147.91	P	277.40	24.17
95	Mo	2	###	672.27	P	54.20	8.06
107	Ag	2	###	312.24	P	128.10	41.03
111	Cd	2	###	104.62	P	37.44	35.79
115	In	2	---	5593534.00	A	53010.00	0.95
118	Sn	2	###	532.26	P	121.00	22.73
121	Sb	2	###	357.80	P	106.30	29.71
137	Ba	2	###	155.56	P	57.39	36.89
205	Tl	2	###	1265.70	P	179.10	14.15
208	Pb	2	###	1307.88	P	332.60	25.43
209	Bi	2	---	5173224.00	A	87670.00	1.69

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 1/20 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 4 2014 12:03 pm
Last Cal. Update: Aug 04 2014 12:00 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	973.21	P	39.50	4.06	
7	Li	2	45	476.69	P	24.04	5.04	Fail
9	Be	2	45	1802.42	P	124.80	6.92	
11	B	2	45	3983.02	P	150.80	3.79	
23	Na	1	45	29725.04	P	334.40	1.13	
24	Mg	1	45	1472.37	P	10.72	0.73	
27	Al	1	45	443.57	P	0.77	0.17	
39	K	1	45	6494.17	P	105.20	1.62	
44	Ca	2	45	23047.68	P	204.80	0.89	
45	Sc	1	---	129578.30	P	3594.00	2.77	
45	Sc	2	---	4319976.00	A	21680.00	0.50	
47	Ti	1	45	20.00	P	7.05	35.27	
51	V	1	45	909.83	P	42.68	4.69	
51	V	2	---		P			
52	Cr	1	45	1033.40	P	59.20	5.73	
55	Mn	1	45	449.79	P	42.59	9.47	
56	Fe	1	72	15315.02	P	544.50	3.56	
59	Co	1	72	1814.83	P	39.09	2.15	
60	Ni	1	72	704.48	P	8.15	1.16	
60	Ni	2	---		P			
63	Cu	1	72	1758.82	P	84.21	4.79	
63	Cu	2	---		P			
66	Zn	1	72	522.24	P	7.34	1.41	
66	Zn	2	---		P			
72	Ge	1	---	86006.54	P	1184.00	1.38	
72	Ge	2	---		P			
75	As	1	72	126.00	P	2.22	1.76	
78	Se	1	72	6.96	P	0.65	9.35	
88	Sr	2	115	8836.88	P	240.50	2.72	
95	Mo	2	115	1885.78	P	51.79	2.75	
107	Ag	2	115	3906.37	P	199.90	5.12	
111	Cd	2	115	774.16	P	56.86	7.34	
115	In	2	---	5541077.00	A	63190.00	1.14	
118	Sn	2	115	2699.33	P	45.51	1.69	
121	Sb	2	115	3389.51	P	119.80	3.53	
137	Ba	2	115	1247.90	P	53.58	4.29	
205	Tl	2	209	7887.54	P	231.50	2.94	
208	Pb	2	209	10591.31	P	479.90	4.53	
209	Bi	2	---	5159891.00	A	35580.00	0.69	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	973.21	4.06	1033.55	94.2	70 - 120	
45	Sc	1	129578.30	2.77	132067.77	98.1	70 - 120	
45	Sc	2	4319976.00	0.50	4317821.50	100.0	70 - 120	
72	Ge	1	86006.54	1.38	87257.11	98.6	70 - 120	
115	In	2	5541076.50	1.14	5593534.00	99.1	70 - 120	
209	Bi	2	5159891.00	0.69	5173223.50	99.7	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 10/200 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 4 2014 12:09 pm
Last Cal. Update: Aug 04 2014 12:06 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	1027.65	P	97.14	9.45	
7	Li	2	45	531.14	P	18.36	3.46	
9	Be	2	45	16881.86	P	640.70	3.80	
11	B	2	45	12953.75	P	218.90	1.69	
23	Na	1	45	58143.24	P	880.40	1.51	
24	Mg	1	45	12521.17	P	219.70	1.75	
27	Al	1	45	3687.71	P	220.60	5.98	
39	K	1	45	14322.09	P	192.40	1.34	
44	Ca	2	45	96954.13	P	603.20	0.62	
45	Sc	1	---	127460.10	P	3500.00	2.75	
45	Sc	2	---	4327690.00	A	61660.00	1.42	
47	Ti	1	45	193.78	P	8.88	4.58	
51	V	1	45	7503.72	P	216.30	2.88	
51	V	2	---		P			
52	Cr	1	45	9570.93	P	291.90	3.05	
55	Mn	1	45	3969.14	P	122.70	3.09	
56	Fe	1	72	144057.59	P	3981.00	2.76	
59	Co	1	72	16532.16	P	328.60	1.99	
60	Ni	1	72	5106.92	P	38.69	0.76	
60	Ni	2	---		P			
63	Cu	1	72	13545.84	P	46.27	0.34	
63	Cu	2	---		P			
66	Zn	1	72	2929.29	P	97.72	3.34	
66	Zn	2	---		P			
72	Ge	1	---	84956.67	P	1459.00	1.72	
72	Ge	2	---		P			
75	As	1	72	934.59	P	12.57	1.35	
78	Se	1	72	44.56	P	0.11	0.25	
88	Sr	2	115	80269.99	P	577.30	0.72	
95	Mo	2	115	14736.24	P	117.00	0.79	
107	Ag	2	115	36815.33	P	118.00	0.32	
111	Cd	2	115	8081.73	P	78.33	0.97	
115	In	2	---	5628042.00	A	48220.00	0.86	
118	Sn	2	115	23971.66	P	70.17	0.29	
121	Sb	2	115	32048.73	P	333.80	1.04	
137	Ba	2	115	11588.37	P	171.00	1.48	
205	Tl	2	209	73101.54	P	259.40	0.35	
208	Pb	2	209	101016.90	P	816.30	0.81	
209	Bi	2	---	5170075.00	A	42240.00	0.82	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	1027.65	9.45	1033.55	99.4	70 - 120	
45	Sc	1	127460.06	2.75	132067.77	96.5	70 - 120	
45	Sc	2	4327690.50	1.42	4317821.50	100.2	70 - 120	
72	Ge	1	84956.67	1.72	87257.11	97.4	70 - 120	
115	In	2	5628041.50	0.86	5593534.00	100.6	70 - 120	
209	Bi	2	5170075.50	0.82	5173223.50	99.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 50/1000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 4 2014 12:15 pm
Last Cal. Update: Aug 04 2014 12:12 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	984.88	P	68.52	6.96	
7	Li	2	45	470.03	P	33.33	7.09	Fail
9	Be	2	45	84209.32	P	932.80	1.11	
11	B	2	45	53430.46	P	627.20	1.17	
23	Na	1	45	160935.70	P	2693.00	1.67	
24	Mg	1	45	61026.67	P	1675.00	2.74	
27	Al	1	45	17738.93	P	419.70	2.37	
39	K	1	45	42824.74	P	816.20	1.91	
44	Ca	2	45	162205.50	P	999.10	0.62	
45	Sc	1	---	128905.10	P	2208.00	1.71	
45	Sc	2	---	4324186.00	A	5993.00	0.14	
47	Ti	1	45	865.38	P	72.93	8.43	
51	V	1	45	36722.14	P	614.70	1.67	
51	V	2	---		P			
52	Cr	1	45	47567.71	P	875.80	1.84	
55	Mn	1	45	19379.83	P	320.70	1.65	
56	Fe	1	72	712670.81	P	13600.00	1.91	
59	Co	1	72	81270.65	P	891.00	1.10	
60	Ni	1	72	23307.56	P	253.40	1.09	
60	Ni	2	---		P			
63	Cu	1	72	64946.79	P	1384.00	2.13	
63	Cu	2	---		P			
66	Zn	1	72	7714.98	P	130.80	1.70	
66	Zn	2	---		P			
72	Ge	1	---	85270.96	P	1348.00	1.58	
72	Ge	2	---		P			
75	As	1	72	4566.48	P	95.75	2.10	
78	Se	1	72	214.52	P	10.11	4.71	
88	Sr	2	115	387931.09	P	3711.00	0.96	
95	Mo	2	115	71937.32	P	719.50	1.00	
107	Ag	2	115	179920.59	P	1795.00	1.00	
111	Cd	2	115	38844.93	P	850.20	2.19	
115	In	2	---	5528090.00	A	22600.00	0.41	
118	Sn	2	115	115407.00	P	821.30	0.71	
121	Sb	2	115	157512.00	P	1798.00	1.14	
137	Ba	2	115	57004.28	P	310.80	0.55	
205	Tl	2	209	357730.69	P	2079.00	0.58	
208	Pb	2	209	493586.31	P	3478.00	0.70	
209	Bi	2	---	5073420.00	A	19100.00	0.38	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	984.88	6.96	1033.55	95.3	70 - 120	
45	Sc	1	128905.13	1.71	132067.77	97.6	70 - 120	
45	Sc	2	4324186.50	0.14	4317821.50	100.1	70 - 120	
72	Ge	1	85270.96	1.58	87257.11	97.7	70 - 120	
115	In	2	5528089.50	0.41	5593534.00	98.8	70 - 120	
209	Bi	2	5073420.00	0.38	5173223.50	98.1	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 100/2000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 4 2014 12:21 pm
Last Cal. Update: Aug 04 2014 12:19 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	978.68	P	123.80	12.65	
7	Li	2	45	477.81	P	23.65	4.95	Fail
9	Be	2	45	169430.41	P	888.00	0.52	
11	B	2	45	104647.60	P	1545.00	1.48	
23	Na	1	45	293754.59	P	3148.00	1.07	
24	Mg	1	45	120080.20	P	1041.00	0.87	
27	Al	1	45	35130.58	P	887.10	2.53	
39	K	1	45	79222.10	P	1024.00	1.29	
44	Ca	2	45	308645.91	P	3195.00	1.04	
45	Sc	1	---	128489.50	P	2154.00	1.68	
45	Sc	2	---	4311838.00	A	23850.00	0.55	
47	Ti	1	45	1775.71	P	109.90	6.19	
51	V	1	45	72853.57	P	1401.00	1.92	
51	V	2	---		P			
52	Cr	1	45	94023.29	P	1934.00	2.06	
55	Mn	1	45	38854.91	P	516.70	1.33	
56	Fe	1	72	1446851.00	A	24670.00	1.71	
59	Co	1	72	160656.50	P	2040.00	1.27	
60	Ni	1	72	46310.08	P	284.80	0.61	
60	Ni	2	---		P			
63	Cu	1	72	127885.40	P	1324.00	1.04	
63	Cu	2	---		P			
66	Zn	1	72	14908.33	P	378.70	2.54	
66	Zn	2	---		P			
72	Ge	1	---	85362.18	P	1157.00	1.36	
72	Ge	2	---		P			
75	As	1	72	9024.09	P	107.80	1.19	
78	Se	1	72	427.05	P	22.03	5.16	
88	Sr	2	115	778981.88	P	13390.00	1.72	
95	Mo	2	115	143626.30	P	2310.00	1.61	
107	Ag	2	115	358335.91	P	4278.00	1.19	
111	Cd	2	115	77513.76	P	815.10	1.05	
115	In	2	---	5553896.00	A	50250.00	0.90	
118	Sn	2	115	230438.50	P	3936.00	1.71	
121	Sb	2	115	313365.91	P	4931.00	1.57	
137	Ba	2	115	114184.40	P	2067.00	1.81	
205	Tl	2	209	719825.69	P	5501.00	0.76	
208	Pb	2	209	985380.69	P	13290.00	1.35	
209	Bi	2	---	5035747.00	A	22350.00	0.44	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	978.68	12.65	1033.55	94.7	70 - 120	
45	Sc	1	128489.53	1.68	132067.77	97.3	70 - 120	
45	Sc	2	4311838.50	0.55	4317821.50	99.9	70 - 120	
72	Ge	1	85362.18	1.36	87257.11	97.8	70 - 120	
115	In	2	5553896.00	0.90	5593534.00	99.3	70 - 120	
209	Bi	2	5035747.50	0.44	5173223.50	97.3	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 250/5000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 4 2014 12:27 pm
Last Cal. Update: Aug 04 2014 12:25 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	980.15	P	38.76	3.95	
7	Li	2	45	473.36	P	32.83	6.94	Fail
9	Be	2	45	419069.31	P	3694.00	0.88	
11	B	2	45	254508.09	P	2076.00	0.82	
23	Na	1	45	704100.19	P	15630.00	2.22	
24	Mg	1	45	302111.50	P	8097.00	2.68	
27	Al	1	45	88122.97	P	2770.00	3.14	
39	K	1	45	191652.20	P	5058.00	2.64	
44	Ca	2	45	734832.50	P	7220.00	0.98	
45	Sc	1	---	129615.10	P	2273.00	1.75	
45	Sc	2	---	4255361.00	A	55050.00	1.29	
47	Ti	1	45	4396.40	P	88.80	2.02	
51	V	1	45	182869.59	P	2882.00	1.58	
51	V	2	---		A			
52	Cr	1	45	235387.30	P	4669.00	1.98	
55	Mn	1	45	96623.24	P	1623.00	1.68	
56	Fe	1	72	3533353.00	A	81620.00	2.31	
59	Co	1	72	400537.59	P	6309.00	1.58	
60	Ni	1	72	113911.30	P	1046.00	0.92	
60	Ni	2	---		P			
63	Cu	1	72	316015.31	P	4840.00	1.53	
63	Cu	2	---		P			
66	Zn	1	72	37279.81	P	623.60	1.67	
66	Zn	2	---		P			
72	Ge	1	---	85478.30	P	1259.00	1.47	
72	Ge	2	---		P			
75	As	1	72	22909.56	P	456.50	1.99	
78	Se	1	72	1066.42	P	45.57	4.27	
88	Sr	2	115	1942725.00	A	18340.00	0.94	
95	Mo	2	115	350792.41	P	6802.00	1.94	
107	Ag	2	115	872813.88	P	7288.00	0.84	
111	Cd	2	115	187096.20	P	3178.00	1.70	
115	In	2	---	5373411.00	A	74380.00	1.38	
118	Sn	2	115	553576.81	P	8672.00	1.57	
121	Sb	2	115	764815.88	P	9353.00	1.22	
137	Ba	2	115	274978.50	P	2592.00	0.94	
205	Tl	2	209	1811355.00	A	14900.00	0.82	
208	Pb	2	209	2446354.00	A	39380.00	1.61	
209	Bi	2	---	4954035.00	A	24800.00	0.50	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	980.15	3.95	1033.55	94.8	70 - 120	
45	Sc	1	129615.12	1.75	132067.77	98.1	70 - 120	
45	Sc	2	4255361.00	1.29	4317821.50	98.6	70 - 120	
72	Ge	1	85478.31	1.47	87257.11	98.0	70 - 120	
115	In	2	5373411.00	1.38	5593534.00	96.1	70 - 120	
209	Bi	2	4954035.00	0.50	5173223.50	95.8	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 500/10000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 4 2014 12:33 pm
Last Cal. Update: Aug 04 2014 12:31 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	1024.28	P	26.00	2.54	
7	Li	2	45	504.47	P	59.85	11.86	
9	Be	2	45	804871.13	A	10120.00	1.26	
11	B	2	45	510401.31	P	4083.00	0.80	
23	Na	1	45	1422489.00	A	32550.00	2.29	
24	Mg	1	45	610404.81	P	12170.00	1.99	
27	Al	1	45	181266.30	P	5611.00	3.10	
39	K	1	45	384560.41	P	8926.00	2.32	
44	Ca	2	45	1533764.00	A	12530.00	0.82	
45	Sc	1	---	132717.91	P	2386.00	1.80	
45	Sc	2	---	4234675.00	A	44660.00	1.05	
47	Ti	1	45	8898.44	P	213.40	2.40	
51	V	1	45	370339.50	P	9136.00	2.47	
51	V	2	---		A			
52	Cr	1	45	475027.00	P	12220.00	2.57	
55	Mn	1	45	196271.09	P	3922.00	2.00	
56	Fe	1	72	6955971.00	A	156500.00	2.25	
59	Co	1	72	803429.31	P	13170.00	1.64	
60	Ni	1	72	228392.50	P	3191.00	1.40	
60	Ni	2	---		P			
63	Cu	1	72	631164.00	P	8751.00	1.39	
63	Cu	2	---		A			
66	Zn	1	72	74980.48	P	1761.00	2.35	
66	Zn	2	---		P			
72	Ge	1	---	86808.24	P	1024.00	1.18	
72	Ge	2	---		P			
75	As	1	72	46645.56	P	938.70	2.01	
78	Se	1	72	2188.27	P	52.41	2.40	
88	Sr	2	115	3861535.00	A	33740.00	0.87	
95	Mo	2	115	712273.50	P	2253.00	0.32	
107	Ag	2	115	1790007.00	A	6179.00	0.35	
111	Cd	2	115	377781.19	P	3586.00	0.95	
115	In	2	---	5319299.00	A	59710.00	1.12	
118	Sn	2	115	1172745.00	A	21840.00	1.86	
121	Sb	2	115	1601296.00	A	26410.00	1.65	
137	Ba	2	115	555709.63	P	7066.00	1.27	
205	Tl	2	209	3611538.00	A	25780.00	0.71	
208	Pb	2	209	4940966.00	A	18250.00	0.37	
209	Bi	2	---	4899063.00	A	9281.00	0.19	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	1024.28	2.54	1033.55	99.1	70 - 120	
45	Sc	1	132717.89	1.80	132067.77	100.5	70 - 120	
45	Sc	2	4234674.50	1.05	4317821.50	98.1	70 - 120	
72	Ge	1	86808.24	1.18	87257.11	99.5	70 - 120	
115	In	2	5319299.00	1.12	5593534.00	95.1	70 - 120	
209	Bi	2	4899063.00	0.19	5173223.50	94.7	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 2000/25000 ppb STD.
Operator: SW Instrument: ICPMS3
Date Acquired: Aug 4 2014 12:39 pm
Last Cal. Update: Aug 04 2014 12:36 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	946.11	P	22.34	2.36	
7	Li	2	45	563.37	P	43.34	7.69	
9	Be	2	45	2996803.00	A	13040.00	0.44	
11	B	2	45	1920265.00	A	8687.00	0.45	
23	Na	1	45	3406698.00	A	51320.00	1.51	
24	Mg	1	45	1543350.00	A	39160.00	2.54	
27	Al	1	45	348.01	P	40.27	11.57	
39	K	1	45	946080.13	A	32010.00	3.38	
44	Ca	2	45	3650180.00	A	22750.00	0.62	
45	Sc	1	---	129021.10	P	2494.00	1.93	
45	Sc	2	---	4151918.00	A	27530.00	0.66	
47	Ti	1	45	34777.24	P	934.10	2.69	
51	V	1	45	1455977.00	A	35770.00	2.46	
51	V	2	---		A			
52	Cr	1	45	1866769.00	A	32230.00	1.73	
55	Mn	1	45	751003.13	P	15640.00	2.08	
56	Fe	1	72	8466.30	P	1740.00	20.55	
59	Co	1	72	3090605.00	A	58260.00	1.89	
60	Ni	1	72	869034.69	P	15300.00	1.76	
60	Ni	2	---		A			
63	Cu	1	72	2423660.00	A	43940.00	1.81	
63	Cu	2	---		A			
66	Zn	1	72	284183.41	P	5455.00	1.92	
66	Zn	2	---		A			
72	Ge	1	---	84465.58	P	983.20	1.16	
72	Ge	2	---		P			
75	As	1	72	179528.50	P	3062.00	1.71	
78	Se	1	72	8451.80	P	177.30	2.10	
88	Sr	2	115	14543330.00	A	122700.00	0.84	
95	Mo	2	115	2821608.00	A	26450.00	0.94	
107	Ag	2	115	1771.49	P	870.00	49.11	
111	Cd	2	115	1506748.00	A	6904.00	0.46	
115	In	2	---	5255759.00	A	23170.00	0.44	
118	Sn	2	115	4288158.00	A	25580.00	0.60	
121	Sb	2	115	1871.48	P	808.90	43.22	
137	Ba	2	115	2208026.00	A	3860.00	0.17	
205	Tl	2	209	13581030.00	A	114900.00	0.85	
208	Pb	2	209	18580760.00	A	89970.00	0.48	
209	Bi	2	---	4801304.00	A	22280.00	0.46	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2		946.11	2.36	1033.55	91.5	70 -	120	
45	Sc	1		129021.07	1.93	132067.77	97.7	70 -	120	
45	Sc	2		4151918.00	0.66	4317821.50	96.2	70 -	120	
72	Ge	1		84465.59	1.16	87257.11	96.8	70 -	120	
115	In	2		5255759.50	0.44	5593534.00	94.0	70 -	120	
209	Bi	2		4801303.50	0.46	5173223.50	92.8	70 -	120	

ICSA QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\029ICSA.D\029ICSA.D#

Date Acquired:	Aug 4 2014 01:33 pm	Sample Name:	**ICSA-140804**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2014 12:42 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	14940.000	ppb	9.31	8.00	5.00	FailSoil
9	Be	2	45	-0.040	ppb	16.38	0.32	0.80	
11	B	2	45	2.685	ppb	3.09	30.00	30.00	
23	Na	1	45	105400.000	ppb	2.17	#######	#######	
24	Mg	1	45	103500.000	ppb	2.14	#######	#######	
27	Al	1	45	100600.000	ppb	2.71	#######	#######	
39	K	1	45	103800.000	ppb	1.78	#######	#######	
44	Ca	2	45	101900.000	ppb	1.06	#######	#######	
47	Ti	1	45	2006.000	ppb	2.14	10.00	10.00	
51	V	1	45	-0.079	ppb	7.72	10.00	10.00	
52	Cr	1	45	0.352	ppb	6.50	8.00	5.00	
55	Mn	1	45	2.197	ppb	5.17	8.00	10.00	
56	Fe	1	72	95340.000	ppb	2.75	#######	#######	
59	Co	1	72	0.464	ppb	3.57	8.00	10.00	
60	Ni	1	72	0.270	ppb	5.15	8.00	10.00	
63	Cu	1	72	0.658	ppb	2.97	8.00	10.00	
66	Zn	1	72	1.459	ppb	1.83	10.00	5.00	
75	As	1	72	0.168	ppb	3.61	4.00	5.00	
78	Se	1	72	-0.131	ppb	12.76	2.00	5.00	
88	Sr	2	115	0.392	ppb	1.74	10.00	10.00	
95	Mo	2	115	2015.000	ppb	1.42	8.00	5.00	
107	Ag	2	115	0.087	ppb	4.85	0.80	2.00	
111	Cd	2	115	0.330	ppb	18.53	1.20	1.00	
118	Sn	2	115	0.025	ppb	9.08	10.00	10.00	
121	Sb	2	115	0.607	ppb	5.86	4.00	2.50	
137	Ba	2	115	0.247	ppb	6.25	8.00	10.00	
205	Tl	2	209	-0.068	ppb	9.91	4.00	1.50	
208	Pb	2	209	0.270	ppb	1.51	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	1068.01	7.33	1033.55	103.3	70 - 120	
45	Sc	1	121346.55	1.40	132067.77	91.9	70 - 120	
45	Sc	2	3561190.80	0.52	4317821.50	82.5	70 - 120	
72	Ge	1	80094.40	1.08	87257.11	91.8	70 - 120	
115	In	2	4703458.50	0.32	5593534.00	84.1	70 - 120	
209	Bi	2	4385438.00	0.95	5173223.50	84.8	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\030ICSB.D\030ICSB.D#

Date Acquired:	Aug 4 2014 01:39 pm	Sample Name:	**ICSAB-140804**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2014 12:42 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	15270.00	ppb	1.59	---	80 -		120	
9	Be	2	45	-0.05	ppb	8.30	---	80 -		120	
11	B	2	45	2.48	ppb	1.70	---	80 -		120	
23	Na	1	45	104000.00	ppb	2.18	100000.00	80 -		120	
24	Mg	1	45	102100.00	ppb	2.44	100000.00	80 -		120	
27	Al	1	45	98960.00	ppb	3.39	100000.00	80 -		120	
39	K	1	45	102500.00	ppb	2.40	100000.00	80 -		120	
44	Ca	2	45	99640.00	ppb	0.69	100000.00	80 -		120	
47	Ti	1	45	1994.00	ppb	3.23	---	80 -		120	
51	V	1	45	38.73	ppb	2.21	40.00	80 -		120	
52	Cr	1	45	19.62	ppb	3.51	20.00	80 -		120	
55	Mn	1	45	20.86	ppb	3.66	20.00	80 -		120	
56	Fe	1	72	94500.00	ppb	2.88	100000.00	80 -		120	
59	Co	1	72	38.66	ppb	1.99	40.00	80 -		120	
60	Ni	1	72	37.93	ppb	1.01	40.00	80 -		120	
63	Cu	1	72	19.58	ppb	2.30	20.00	80 -		120	
66	Zn	1	72	19.38	ppb	1.53	20.00	80 -		120	
75	As	1	72	19.55	ppb	1.65	20.00	80 -		120	
78	Se	1	72	18.29	ppb	7.40	20.00	80 -		120	
88	Sr	2	115	1.57	ppb	1.76	---	80 -		120	
95	Mo	2	115	2011.00	ppb	0.60	---	80 -		120	
107	Ag	2	115	18.43	ppb	1.31	20.00	80 -		120	
111	Cd	2	115	9.33	ppb	4.30	10.00	80 -		120	
118	Sn	2	115	0.04	ppb	5.29	---	80 -		120	
121	Sb	2	115	0.35	ppb	6.08	---	80 -		120	
137	Ba	2	115	0.22	ppb	10.95	---	80 -		120	
205	Tl	2	209	-0.09	ppb	1.16	---	80 -		120	
208	Pb	2	209	0.12	ppb	8.18	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	1072.63	4.62	1033.55	103.8	70 -		120	
45	Sc	1	121022.59	1.63	132067.77	91.6	70 -		120	
45	Sc	2	3515675.80	0.43	4317821.50	81.4	70 -		120	
72	Ge	1	80141.38	1.20	87257.11	91.8	70 -		120	
115	In	2	4660434.50	1.24	5593534.00	83.3	70 -		120	
209	Bi	2	4304730.50	1.11	5173223.50	83.2	70 -		120	

CCV QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\033ICV.D\033ICV.D#

Date Acquired:	Aug 4 2014 01:58 pm	Sample Name:	**ICV1-140804**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2014 12:42 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	27310.00	ppb	3.67	100.00	90 -	110	######	Fail
9	Be	2	45	102.90	ppb	1.15	100.00	90 -	110	102.9	
11	B	2	45	97.85	ppb	1.77	100.00	90 -	110	97.9	
23	Na	1	45	2721.00	ppb	1.61	2500.00	90 -	110	108.8	
24	Mg	1	45	2646.00	ppb	1.60	2500.00	90 -	110	105.8	
27	Al	1	45	2420.00	ppb	2.11	2500.00	90 -	110	96.8	
39	K	1	45	2638.00	ppb	3.14	2500.00	90 -	110	105.5	
44	Ca	2	45	2483.00	ppb	1.42	2500.00	90 -	110	99.3	
47	Ti	1	45	97.07	ppb	4.97	100.00	90 -	110	97.1	
51	V	1	45	95.01	ppb	3.00	100.00	90 -	110	95.0	
52	Cr	1	45	97.89	ppb	2.82	100.00	90 -	110	97.9	
55	Mn	1	45	95.31	ppb	2.09	100.00	90 -	110	95.3	
56	Fe	1	72	2564.00	ppb	2.49	2500.00	90 -	110	102.6	
59	Co	1	72	101.00	ppb	2.41	100.00	90 -	110	101.0	
60	Ni	1	72	100.40	ppb	1.41	100.00	90 -	110	100.4	
63	Cu	1	72	99.85	ppb	1.50	100.00	90 -	110	99.9	
66	Zn	1	72	97.08	ppb	1.26	100.00	90 -	110	97.1	
75	As	1	72	94.76	ppb	2.27	100.00	90 -	110	94.8	
78	Se	1	72	90.54	ppb	2.00	100.00	90 -	110	90.5	
88	Sr	2	115	92.52	ppb	1.90	100.00	90 -	110	92.5	
95	Mo	2	115	89.13	ppb	1.57	100.00	90 -	110	89.1	Fail
107	Ag	2	115	92.49	ppb	1.76	100.00	90 -	110	92.5	
111	Cd	2	115	91.71	ppb	0.46	100.00	90 -	110	91.7	
118	Sn	2	115	95.85	ppb	0.93	100.00	90 -	110	95.9	
121	Sb	2	115	91.51	ppb	1.42	100.00	90 -	110	91.5	
137	Ba	2	115	91.73	ppb	1.68	100.00	90 -	110	91.7	
205	Tl	2	209	95.89	ppb	1.30	100.00	90 -	110	95.9	
208	Pb	2	209	97.46	ppb	1.59	100.00	90 -	110	97.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	1214.46	3.59	1033.55	117.5	70 -	120		
45	Sc	1	128507.02	1.94	132067.77	97.3	70 -	120		
45	Sc	2	3795146.30	0.41	4317821.50	87.9	70 -	120		
72	Ge	1	84469.07	1.73	87257.11	96.8	70 -	120		
115	In	2	5246726.00	1.03	5593534.00	93.8	70 -	120		
209	Bi	2	4878687.00	1.01	5173223.50	94.3	70 -	120		

ICB QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\034_ICB.D\034_ICB.D#

Date Acquired:	Aug 4 2014 02:04 pm	Sample Name:	**ICB1-140804**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2014 12:42 pm	Instrument:	ICPMS3

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	2855.00	ppb	2.43	5.00	Fail
9	Be	2	45	-0.01	ppb	32.08	0.80	
11	B	2	45	-0.28	ppb	2.65	10.00	
23	Na	1	45	23.98	ppb	3.57	50.00	
24	Mg	1	45	16.14	ppb	35.05	50.00	
27	Al	1	45	14.87	ppb	33.17	30.00	
39	K	1	45	13.34	ppb	4.68	50.00	
44	Ca	2	45	-8.97	ppb	5.96	50.00	
47	Ti	1	45	0.40	ppb	62.27	10.00	
51	V	1	45	-0.04	ppb	8.62	10.00	
52	Cr	1	45	-0.05	ppb	19.63	3.00	
55	Mn	1	45	0.04	ppb	11.49	10.00	
56	Fe	1	72	15.33	ppb	39.35	50.00	
59	Co	1	72	-0.06	ppb	20.56	3.00	
60	Ni	1	72	-0.10	ppb	17.17	3.00	
63	Cu	1	72	-0.02	ppb	9.71	3.00	
66	Zn	1	72	-0.06	ppb	6.81	10.00	
75	As	1	72	0.00	ppb	6.57	10.00	
78	Se	1	72	-0.21	ppb	7.61	10.00	
88	Sr	2	115	-0.02	ppb	28.16	10.00	
95	Mo	2	115	0.98	ppb	7.23	10.00	
107	Ag	2	115	0.00	ppb	40.84	2.00	
111	Cd	2	115	-0.04	ppb	36.77	1.00	
118	Sn	2	115	-0.04	ppb	31.68	10.00	
121	Sb	2	115	-0.02	ppb	38.35	1.00	
137	Ba	2	115	0.00	ppb	29.14	3.00	
205	Tl	2	209	0.03	ppb	15.12	1.00	
208	Pb	2	209	0.00	ppb	25.82	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	1076.43	3.63	1033.55	104.1	70 - 120	
45	Sc	1	125939.90	2.52	132067.77	95.4	70 - 120	
45	Sc	2	3734404.30	0.89	4317821.50	86.5	70 - 120	
72	Ge	1	84257.71	1.57	87257.11	96.6	70 - 120	
115	In	2	5200833.50	0.95	5593534.00	93.0	70 - 120	
209	Bi	2	4882559.50	0.56	5173223.50	94.4	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\035LCVL.D\035LCVL.D#

Date Acquired:	Aug 4 2014 02:10 pm	Sample Name:	**ILCVL-140804**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2014 12:42 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	399.10	ppb	14.97	5.00	70 -	130	7982.0	Fail
9	Be	2	45	1.13	ppb	5.16	1.00	70 -	130	112.7	
11	B	2	45	21.36	ppb	1.76	20.00	70 -	130	106.8	
23	Na	1	45	118.30	ppb	2.17	100.00	70 -	130	118.3	
24	Mg	1	45	113.10	ppb	2.61	100.00	70 -	130	113.1	
27	Al	1	45	115.20	ppb	3.75	100.00	70 -	130	115.2	
39	K	1	45	110.90	ppb	1.70	100.00	70 -	130	110.9	
44	Ca	2	45	86.00	ppb	0.89	100.00	70 -	130	86.0	
47	Ti	1	45	5.37	ppb	0.82	5.00	70 -	130	107.4	
51	V	1	45	1.02	ppb	7.00	1.00	70 -	130	102.1	
52	Cr	1	45	5.49	ppb	4.48	5.00	70 -	130	109.7	
55	Mn	1	45	5.15	ppb	3.85	5.00	70 -	130	103.0	
56	Fe	1	72	112.30	ppb	2.25	100.00	70 -	130	112.3	
59	Co	1	72	5.43	ppb	1.48	5.00	70 -	130	108.5	
60	Ni	1	72	5.44	ppb	1.47	5.00	70 -	130	108.8	
63	Cu	1	72	5.44	ppb	0.87	5.00	70 -	130	108.7	
66	Zn	1	72	5.17	ppb	10.13	5.00	70 -	130	103.4	
75	As	1	72	5.08	ppb	2.76	5.00	70 -	130	101.5	
78	Se	1	72	4.70	ppb	4.46	5.00	70 -	130	94.1	
88	Sr	2	115	5.09	ppb	2.00	5.00	70 -	130	101.8	
95	Mo	2	115	5.27	ppb	1.63	5.00	70 -	130	105.3	
107	Ag	2	115	1.95	ppb	0.51	2.00	70 -	130	97.6	
111	Cd	2	115	0.99	ppb	12.71	1.00	70 -	130	99.1	
118	Sn	2	115	5.20	ppb	1.93	5.00	70 -	130	104.0	
121	Sb	2	115	1.99	ppb	1.55	2.00	70 -	130	99.3	
137	Ba	2	115	5.19	ppb	2.44	5.00	70 -	130	103.8	
205	Tl	2	209	0.95	ppb	1.57	1.00	70 -	130	95.2	
208	Pb	2	209	1.01	ppb	0.74	1.00	70 -	130	100.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	1013.48	3.25	1033.55	98.1	70 -	120		
45	Sc	1	126783.29	1.91	132067.77	96.0	70 -	120		
45	Sc	2	3776485.30	0.92	4317821.50	87.5	70 -	120		
72	Ge	1	84617.36	1.93	87257.11	97.0	70 -	120		
115	In	2	5206066.00	1.45	5593534.00	93.1	70 -	120		
209	Bi	2	4907866.00	0.65	5173223.50	94.9	70 -	120		

Sample QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\038SMPL.D\038SMPL.D#

Date Acquired:	Aug 4 2014 02:28 pm	Sample Name:	**1407278-05A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	10.00
Last Cal. Update:	Aug 04 2014 12:42 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	382500.000	ppb	#REF!	0.32	2000.00	OUTCAL
9	Be	2	45	-0.086	ppb	#REF!	31.41	2000.00	ND
11	B	2	45	17.650	ppb	#REF!	1.59	2000.00	J
23	Na	1	45	13560.000	ppb	#REF!	0.99	25000.00	>RL
24	Mg	1	45	1736.000	ppb	#REF!	2.27	25000.00	>RL
27	Al	1	45	6.264	ppb	#REF!	3.37	10000.00	ND
39	K	1	45	559.300	ppb	#REF!	3.27	25000.00	>RL
44	Ca	2	45	11320.000	ppb	#REF!	1.39	25000.00	>RL
47	Ti	1	45	0.189	ppb	#REF!	26.65	2000.00	ND
51	V	1	45	0.286	ppb	#REF!	1.11	2000.00	ND
52	Cr	1	45	-0.090	ppb	#REF!	9.84	2000.00	ND
55	Mn	1	45	0.753	ppb	#REF!	12.43	2000.00	ND
56	Fe	1	72	2.607	ppb	#REF!	5.25	10000.00	ND
59	Co	1	72	0.118	ppb	#REF!	2.79	2000.00	ND
60	Ni	1	72	1.533	ppb	#REF!	4.84	2000.00	ND
63	Cu	1	72	4.039	ppb	#REF!	1.90	2000.00	J
66	Zn	1	72	10.430	ppb	#REF!	2.81	2000.00	>RL
75	As	1	72	7.498	ppb	#REF!	0.60	2000.00	>RL
78	Se	1	72	3.379	ppb	#REF!	4.24	2000.00	J
88	Sr	2	115	41.970	ppb	#REF!	0.29	2000.00	>RL
95	Mo	2	115	10.320	ppb	#REF!	1.49	2000.00	>RL
107	Ag	2	115	-0.065	ppb	#REF!	10.00	500.00	ND
111	Cd	2	115	-0.082	ppb	#REF!	37.98	2000.00	ND
118	Sn	2	115	-0.130	ppb	#REF!	13.68	2000.00	ND
121	Sb	2	115	52.380	ppb	#REF!	0.88	500.00	>RL
137	Ba	2	115	8.897	ppb	#REF!	0.85	2000.00	J
205	Tl	2	209	-0.120	ppb	#REF!	13.69	2000.00	ND
208	Pb	2	209	0.068	ppb	#REF!	1.34	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	734.64	11.94	RHigh	1033.55	71.1	70 - 120	
45	Sc	1	126572.03	2.49		132067.77	95.8	70 - 120	
45	Sc	2	3825863.00	0.97		4317821.50	88.6	70 - 120	
72	Ge	1	83867.11	1.77		87257.11	96.1	70 - 120	
115	In	2	5300759.50	0.86		5593534.00	94.8	70 - 120	
209	Bi	2	4876058.50	0.71		5173223.50	94.3	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\039SMPL.D\039SMPL.D#

Date Acquired:	Aug 4 2014 02:34 pm	Sample Name:	**1407278-12A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMP6020A_W
Operator:	SW	Bench Diln:	10.00
Last Cal. Update:	Aug 04 2014 12:42 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	358700.000	ppb	#REF!	2.91	2000.00	OUTCAL
9	Be	2	45	-0.089	ppb	#REF!	23.10	2000.00	ND
11	B	2	45	17.650	ppb	#REF!	2.19	2000.00	J
23	Na	1	45	12860.000	ppb	#REF!	1.15	25000.00	>RL
24	Mg	1	45	1640.000	ppb	#REF!	2.45	25000.00	>RL
27	Al	1	45	6.960	ppb	#REF!	6.95	10000.00	ND
39	K	1	45	529.800	ppb	#REF!	1.04	25000.00	>RL
44	Ca	2	45	11140.000	ppb	#REF!	0.81	25000.00	>RL
47	Ti	1	45	0.187	ppb	#REF!	74.18	2000.00	ND
51	V	1	45	0.268	ppb	#REF!	4.81	2000.00	ND
52	Cr	1	45	-0.099	ppb	#REF!	16.20	2000.00	ND
55	Mn	1	45	0.930	ppb	#REF!	8.64	2000.00	ND
56	Fe	1	72	2.162	ppb	#REF!	5.76	10000.00	ND
59	Co	1	72	0.110	ppb	#REF!	8.40	2000.00	ND
60	Ni	1	72	1.388	ppb	#REF!	8.36	2000.00	ND
63	Cu	1	72	3.861	ppb	#REF!	3.02	2000.00	J
66	Zn	1	72	9.835	ppb	#REF!	2.02	2000.00	>RL
75	As	1	72	7.136	ppb	#REF!	4.80	2000.00	>RL
78	Se	1	72	3.365	ppb	#REF!	8.66	2000.00	J
88	Sr	2	115	41.000	ppb	#REF!	0.92	2000.00	>RL
95	Mo	2	115	10.330	ppb	#REF!	1.58	2000.00	>RL
107	Ag	2	115	-0.064	ppb	#REF!	15.02	500.00	ND
111	Cd	2	115	-0.086	ppb	#REF!	47.13	2000.00	ND
118	Sn	2	115	-0.121	ppb	#REF!	18.22	2000.00	ND
121	Sb	2	115	51.600	ppb	#REF!	0.94	500.00	>RL
137	Ba	2	115	8.682	ppb	#REF!	1.24	2000.00	J
205	Tl	2	209	-0.128	ppb	#REF!	11.66	2000.00	ND
208	Pb	2	209	0.075	ppb	#REF!	2.07	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	675.48	4.26	1033.55	65.4	70 - 120	ISFail
45	Sc	1	128190.49	2.03	132067.77	97.1	70 - 120	
45	Sc	2	3854211.80	0.87	4317821.50	89.3	70 - 120	
72	Ge	1	85524.53	1.82	87257.11	98.0	70 - 120	
115	In	2	5275048.50	1.22	5593534.00	94.3	70 - 120	
209	Bi	2	4898288.50	0.90	5173223.50	94.7	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\047CCV1.D\047CCV1.D#

Date Acquired:	Aug 4 2014 03:23 pm	Sample Name:	**CCV1-140804**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2014 12:42 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	-3773.00	ppb	2.72	200.00	90 -	110	######	Fail
9	Be	2	45	207.70	ppb	0.93	200.00	90 -	110	103.9	
11	B	2	45	203.40	ppb	0.59	200.00	90 -	110	101.7	
23	Na	1	45	4939.00	ppb	1.58	5000.00	90 -	110	98.8	
24	Mg	1	45	4827.00	ppb	2.15	5000.00	90 -	110	96.5	
27	Al	1	45	4960.00	ppb	3.39	5000.00	90 -	110	99.2	
39	K	1	45	4938.00	ppb	2.07	5000.00	90 -	110	98.8	
44	Ca	2	45	4747.00	ppb	0.95	5000.00	90 -	110	94.9	
47	Ti	1	45	195.90	ppb	0.80	200.00	90 -	110	98.0	
51	V	1	45	195.40	ppb	2.11	200.00	90 -	110	97.7	
52	Cr	1	45	196.90	ppb	2.08	200.00	90 -	110	98.5	
55	Mn	1	45	201.10	ppb	2.81	200.00	90 -	110	100.6	
56	Fe	1	72	5073.00	ppb	2.68	5000.00	90 -	110	101.5	
59	Co	1	72	202.50	ppb	2.06	200.00	90 -	110	101.3	
60	Ni	1	72	205.20	ppb	2.08	200.00	90 -	110	102.6	
63	Cu	1	72	203.30	ppb	1.26	200.00	90 -	110	101.7	
66	Zn	1	72	198.10	ppb	1.86	200.00	90 -	110	99.1	
75	As	1	72	196.90	ppb	2.10	200.00	90 -	110	98.5	
78	Se	1	72	194.20	ppb	3.48	200.00	90 -	110	97.1	
88	Sr	2	115	201.40	ppb	1.47	200.00	90 -	110	100.7	
95	Mo	2	115	191.20	ppb	0.38	200.00	90 -	110	95.6	
107	Ag	2	115	194.10	ppb	0.62	200.00	90 -	110	97.1	
111	Cd	2	115	190.20	ppb	0.52	200.00	90 -	110	95.1	
118	Sn	2	115	196.60	ppb	0.74	200.00	90 -	110	98.3	
121	Sb	2	115	192.00	ppb	1.30	200.00	90 -	110	96.0	
137	Ba	2	115	193.90	ppb	1.81	200.00	90 -	110	97.0	
205	Tl	2	209	209.80	ppb	1.65	200.00	90 -	110	104.9	
208	Pb	2	209	201.00	ppb	1.34	200.00	90 -	110	100.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2 RHigh	890.47	5.36	1033.55	86.2	70 -	120		
45	Sc	1	134813.44	1.37	132067.77	102.1	70 -	120		
45	Sc	2	4053663.80	0.82	4317821.50	93.9	70 -	120		
72	Ge	1	87537.59	1.29	87257.11	100.3	70 -	120		
115	In	2	5461566.00	0.65	5593534.00	97.6	70 -	120		
209	Bi	2	4999833.50	1.66	5173223.50	96.6	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\049LCVL.D\049LCVL.D#

Date Acquired:	Aug 4 2014 03:35 pm	Sample Name:	**LCVL1-140804**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVL6020A_W
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2014 12:42 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	-4754.00	ppb	6.55	5.00	70 -	130	######	Fail
9	Be	2	45	1.15	ppb	3.28	1.00	70 -	130	115.2	
11	B	2	45	21.13	ppb	1.01	20.00	70 -	130	105.7	
23	Na	1	45	85.59	ppb	1.65	100.00	70 -	130	85.6	
24	Mg	1	45	107.30	ppb	1.18	100.00	70 -	130	107.3	
27	Al	1	45	106.30	ppb	1.62	100.00	70 -	130	106.3	
39	K	1	45	99.32	ppb	3.59	100.00	70 -	130	99.3	
44	Ca	2	45	85.02	ppb	0.58	100.00	70 -	130	85.0	
47	Ti	1	45	5.25	ppb	6.29	5.00	70 -	130	104.9	
51	V	1	45	1.07	ppb	1.34	1.00	70 -	130	107.0	
52	Cr	1	45	5.44	ppb	1.36	5.00	70 -	130	108.9	
55	Mn	1	45	5.40	ppb	2.33	5.00	70 -	130	108.1	
56	Fe	1	72	107.10	ppb	1.55	100.00	70 -	130	107.1	
59	Co	1	72	5.46	ppb	0.83	5.00	70 -	130	109.1	
60	Ni	1	72	5.25	ppb	0.76	5.00	70 -	130	104.9	
63	Cu	1	72	5.40	ppb	1.13	5.00	70 -	130	108.1	
66	Zn	1	72	5.16	ppb	2.06	5.00	70 -	130	103.1	
75	As	1	72	5.16	ppb	3.00	5.00	70 -	130	103.3	
78	Se	1	72	4.54	ppb	4.56	5.00	70 -	130	90.7	
88	Sr	2	115	5.25	ppb	1.16	5.00	70 -	130	105.0	
95	Mo	2	115	4.98	ppb	2.64	5.00	70 -	130	99.6	
107	Ag	2	115	2.08	ppb	1.86	2.00	70 -	130	104.1	
111	Cd	2	115	1.07	ppb	7.63	1.00	70 -	130	106.8	
118	Sn	2	115	5.31	ppb	1.09	5.00	70 -	130	106.3	
121	Sb	2	115	2.30	ppb	4.86	2.00	70 -	130	115.1	
137	Ba	2	115	5.04	ppb	0.25	5.00	70 -	130	100.9	
205	Tl	2	209	1.05	ppb	2.45	1.00	70 -	130	104.8	
208	Pb	2	209	1.06	ppb	3.52	1.00	70 -	130	106.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	RHigh	806.72	5.25	1033.55	78.1	70 -	120	
45	Sc	1		131530.41	2.03	132067.77	99.6	70 -	120	
45	Sc	2		3965187.80	0.81	4317821.50	91.8	70 -	120	
72	Ge	1		86544.90	0.93	87257.11	99.2	70 -	120	
115	In	2		5279953.50	1.09	5593534.00	94.4	70 -	120	
209	Bi	2		4974881.00	1.58	5173223.50	96.2	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\14H04k02.B\050_CCB.D\050_CCB.D#

Date Acquired:	Aug 4 2014 03:41 pm	Sample Name:	**CCB1-140804**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	SW	Diln Factor:	1.00
Last Cal. Update:	Aug 04 2014 12:42 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	-3610.000	ppb	6.74	2.00	2.00	
9	Be	2	45	-0.024	ppb	30.91	0.10	0.30	
11	B	2	45	-0.413	ppb	0.73	10.00	10.00	
23	Na	1	45	-18.060	ppb	1.61	50.00	#####	
24	Mg	1	45	-0.510	ppb	3.94	50.00	#####	
27	Al	1	45	1.753	ppb	18.98	50.00	10.00	
39	K	1	45	-0.397	ppb	3.80	50.00	#####	
44	Ca	2	45	-14.860	ppb	1.17	50.00	#####	
47	Ti	1	45	0.001	ppb	49.99	4.00	3.00	
51	V	1	45	-0.043	ppb	8.96	4.00	3.00	
52	Cr	1	45	-0.041	ppb	8.89	2.00	2.00	
55	Mn	1	45	-0.073	ppb	9.09	2.00	3.00	
56	Fe	1	72	-0.337	ppb	11.31	50.00	50.00	
59	Co	1	72	-0.084	ppb	4.44	2.00	3.00	
60	Ni	1	72	-0.175	ppb	9.14	2.00	3.00	
63	Cu	1	72	-0.124	ppb	4.23	2.00	2.00	
66	Zn	1	72	-0.164	ppb	13.21	4.00	2.00	
75	As	1	72	-0.050	ppb	3.81	2.00	2.00	
78	Se	1	72	-0.129	ppb	13.13	0.60	2.00	
88	Sr	2	115	-0.010	ppb	10.53	4.00	3.00	
95	Mo	2	115	-0.053	ppb	9.47	2.00	2.00	
107	Ag	2	115	-0.030	ppb	23.55	0.40	1.00	
111	Cd	2	115	-0.055	ppb	40.18	0.40	0.30	
118	Sn	2	115	-0.047	ppb	16.29	4.00	3.00	
121	Sb	2	115	0.104	ppb	8.81	2.00	0.80	
137	Ba	2	115	-0.020	ppb	11.97	2.00	3.00	
205	Tl	2	209	-0.058	ppb	16.78	2.00	0.50	
208	Pb	2	209	-0.042	ppb	19.33	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	792.69	3.85	1033.55	76.7	70 - 120	
45	Sc	1	131828.95	1.68	132067.77	99.8	70 - 120	
45	Sc	2	4004397.00	0.18	4317821.50	92.7	70 - 120	
72	Ge	1	86676.46	1.80	87257.11	99.3	70 - 120	
115	In	2	5315663.00	0.76	5593534.00	95.0	70 - 120	
209	Bi	2	4962421.00	0.99	5173223.50	95.9	70 - 120	

ICP-MS4
For

DHL Work Order
1407278

ICP-MS4_140801A
For

DHL Work Order
1407278

Lab Data Review Check List

EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS4_140801A SOP: Metals-ICP-MS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			X
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			X
P/A Factor	Before ICAL	Increasing trend	X			
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			X
ICSAB (N/A for Method 200.8)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLS and ICSA/ICSAB is N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			X
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%	X			
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%			X	
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%		X		
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)	X			
Dilution Test (SD) - RPD	Every Batch	10		X		
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)		X		

Lab Data Review Check List

EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			X
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> 5% of highest standard		X		
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality			X	X
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

TECHNICAL DIRECTOR / QA MANAGER APPROVAL SIGNATURE AND DATE STAMP:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> MDL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag data / Case narrative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

See notes in Run Log

Analyst: Date of Completion: 8/4/2014

Second-Level Review: Reviewer Date Stamp:

REVIEWED
By Evelyn Ferrero at 11:31:35 AM, 8/4/2014

DHL Analytical, Inc.

Run ID: **ICP-MS4_140801A** **Run No.:** 74662

Analytical Run Date: 8/1/2014 **InstrumentID:** ICP-MS4

Analyst: Ryan Oliver

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TW	CAL	R74662	8/1/2014 10:38:00 AM		
Cal01	1	ICPMS_TW	CAL	R74662	8/1/2014 10:40:00 AM		
Cal02	1	ICPMS_TW	CAL	R74662	8/1/2014 10:42:00 AM		
Cal03	1	ICPMS_TW	CAL	R74662	8/1/2014 10:44:00 AM		
Cal04	1	ICPMS_TW	CAL	R74662	8/1/2014 10:46:00 AM		
Cal05	1	ICPMS_TW	CAL	R74662	8/1/2014 10:47:00 AM		
Cal06	1	ICPMS_TW	CAL	R74662	8/1/2014 10:49:00 AM		
Cal07	1	ICPMS_TW	CAL	R74662	8/1/2014 10:51:00 AM		
ICSA-140801	1	ICPMS_TW	ICSA	R74662	8/1/2014 10:57:00 AM		
ICSAB-140801	1	ICPMS_TW	ICSB	R74662	8/1/2014 11:17:00 AM		
ICV-140801	1	6020A_W	ICV	R74662	8/1/2014 11:25:00 AM		
LCVL-140801	1	6020A_W	LCVL	R74662	8/1/2014 11:29:00 AM		
ICB-140801	1	6020A_W	ICB	R74662	8/1/2014 11:33:00 AM		
MB-64943	1	6020A_W	MBLK	64943	8/1/2014 12:10:00 PM		
LCS-64943	1	6020A_W	LCS	64943	8/1/2014 12:12:00 PM		
LCSD-64943	1	6020A_W	LCSD	64943	8/1/2014 12:14:00 PM		
1407285-01A	1	6020A_W	SAMP	64943	8/1/2014 12:17:00 PM		
1407285-01A SD	5	6020A_W	SD	64943	8/1/2014 12:19:00 PM		
1407285-02A	1	6020A_W	SAMP	64943	8/1/2014 12:21:00 PM		
1407285-03A	1	6020A_W	SAMP	64943	8/1/2014 12:23:00 PM		
1407303-01A	1	6020A_W	SAMP	64943	8/1/2014 12:25:00 PM		
1407303-02A	1	6020A_W	SAMP	64943	8/1/2014 12:27:00 PM		
1407303-03A	1	6020A_W	SAMP	64943	8/1/2014 12:29:00 PM		
1407303-04A	1	6020A_W	SAMP	64943	8/1/2014 12:31:00 PM		
1407278-14A	1	6020A_W	SAMP	64943	8/1/2014 12:33:00 PM		
1407278-15A	1	6020A_W	SAMP	64943	8/1/2014 12:35:00 PM		
1407278-16A	1	6020A_W	SAMP	64943	8/1/2014 12:37:00 PM		
1407285-01A PDS	1	6020A_W	PDS	64943	8/1/2014 12:39:00 PM		
1407285-01A MS	1	6020A_W	MS	64943	8/1/2014 12:40:00 PM		
1407285-01A MSD	1	6020A_W	MSD	64943	8/1/2014 12:42:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140717	ICPMS CCV 200/5000 PPB		10/15/2014
MET-H2CAL-1407	ICPMS High Cal2 2000ppb std 8		10/15/2014
MET-HCAL-14071	ICPMS High Cal 500ppb/10ppm s		10/15/2014
MET-ICV-140714	ICPMS ICV 100 ppb		10/12/2014
MET-IS-140718	INTERNAL STANDARD 1 PPM		10/16/2014
MET-L2CAL-14071	ICPMS Low Cal2 1/20ppb std 2		10/15/2014
MET-LCAL-140717	ICPMS Low Cal 10/200ppb std 3		10/15/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		10/15/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		10/15/2014
MET-MCAL-14071	ICPMS Mid Cal 250/5000ppb std		10/15/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140715	250 PPM Naturals+Al+Fe PDS		10/13/2014
MET-PDS-140717-	10 PPM CUSTOM PDS SOLUTI		10/15/2014
MET-PDS-140717-	10 PPM Ag+Sb PDS		10/15/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		10/16/2014

Run ID: ICP-MS4_140801A **Run No.:** 74662

CCV1-140801	1	6020A_W	CCV	R74662	8/1/2014 12:44:00 PM		
LCVL1-140801	1	6020A_W	LCVL	R74662	8/1/2014 12:54:00 PM		
CCB1-140801	1	6020A_W	CCB	R74662	8/1/2014 12:56:00 PM		
1407278-17A	1	6020A_W	SAMP	64943	8/1/2014 1:04:00 PM		
1407278-18A	1	6020A_W	SAMP	64943	8/1/2014 1:06:00 PM		
1407278-19A	1	6020A_W	SAMP	64943	8/1/2014 1:08:00 PM		
1407278-20A	1	6020A_W	SAMP	64943	8/1/2014 1:10:00 PM		
1407278-21A	1	6020A_W	SAMP	64943	8/1/2014 1:12:00 PM		
1407278-22A	1	6020A_W	SAMP	64943	8/1/2014 1:13:00 PM		
1407278-23A	1	6020A_W	SAMP	64943	8/1/2014 1:15:00 PM		
1407278-24A	1	6020A_W	SAMP	64943	8/1/2014 1:17:00 PM		
CCV2-140801	1	6020A_W	CCV	R74662	8/1/2014 1:30:00 PM		
LCVL2-140801	1	6020A_W	LCVL	R74662	8/1/2014 2:01:00 PM		
CCB2-140801	1	6020A_W	CCB	R74662	8/1/2014 2:06:00 PM		
MB-64956	5	6020A_S	MBLK	64956	8/1/2014 2:08:00 PM		
LCS-64956	5	6020A_S	LCS	64956	8/1/2014 2:10:00 PM		
LCSD-64956	5	6020A_S	LCSD	64956	8/1/2014 2:12:00 PM		
1407273-17C	5	6020A_S	SAMP	64956	8/1/2014 2:16:00 PM		
1407273-17C SD	25	6020A_S	SD	64956	8/1/2014 2:18:00 PM		
1407273-24C	5	6020A_S	SAMP	64956	8/1/2014 2:20:00 PM		
1407273-25C	5	6020A_S	SAMP	64956	8/1/2014 2:21:00 PM		
1407273-26C	5	6020A_S	SAMP	64956	8/1/2014 2:23:00 PM		
1407273-27C	5	6020A_S	SAMP	64956	8/1/2014 2:25:00 PM		
1407273-28C	5	6020A_S	SAMP	64956	8/1/2014 2:27:00 PM		
1407273-29C	5	6020A_S	SAMP	64956	8/1/2014 2:29:00 PM		
1407273-17C PDS	5	6020A_S	PDS	64956	8/1/2014 2:37:00 PM		S-flag Ag; SD passes; data accepted
1407273-17C MS	5	6020A_S	MS	64956	8/1/2014 2:39:00 PM		S-flag Ba
1407273-17C MSD	5	6020A_S	MSD	64956	8/1/2014 2:40:00 PM		S-flag Ba
CCV3-140801	1	6020A_W	CCV	R74662	8/1/2014 2:42:00 PM		
LCVL3-140801	1	6020A_W	LCVL	R74662	8/1/2014 2:46:00 PM		
CCB3-140801	1	6020A_W	CCB	R74662	8/1/2014 2:50:00 PM		
CCV4-140801	1	6020A_W	CCV	R74662	8/1/2014 3:15:00 PM		
LCVL4-140801	1	6020A_W	LCVL	R74662	8/1/2014 3:21:00 PM		
CCB4-140801	1	6020A_W	CCB	R74662	8/1/2014 3:23:00 PM		
MB-64961	5	6020A_S	MBLK	64961	8/1/2014 3:26:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140717	ICPMS CCV 200/5000 PPB		10/15/2014
MET-H2CAL-1407	ICPMS High Cal2 2000ppb std 8		10/15/2014
MET-HCAL-14071	ICPMS High Cal 500ppb/10ppm s		10/15/2014
MET-ICV-140714	ICPMS ICV 100 ppb		10/12/2014
MET-IS-140718	INTERNAL STANDARD 1 PPM		10/16/2014
MET-L2CAL-14071	ICPMS Low Cal2 1/20ppb std 2		10/15/2014
MET-LCAL-140717	ICPMS Low Cal 10/200ppb std 3		10/15/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		10/15/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		10/15/2014
MET-MCAL-14071	ICPMS Mid Cal 250/5000ppb std		10/15/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140715	250 PPM Naturals+Al+Fe PDS		10/13/2014
MET-PDS-140717-	10 PPM CUSTOM PDS SOLUTI		10/15/2014
MET-PDS-140717-	10 PPM Ag+Sb PDS		10/15/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		10/16/2014

Run ID: ICP-MS4_140801A **Run No.:** 74662

LCS-64961	5	6020A_S	LCS	64961	8/1/2014 3:28:00 PM		
LCSD-64961	5	6020A_S	LCSD	64961	8/1/2014 3:30:00 PM		
1407279-17C	5	6020A_S	SAMP	64961	8/1/2014 3:34:00 PM		
1407279-17C SD	25	6020A_S	SD	64961	8/1/2014 3:36:00 PM		R-flag Se; PDS passes; data accepted
1407279-02C	5	6020A_S	SAMP	64961	8/1/2014 3:40:00 PM		
1407279-03C	5	6020A_S	SAMP	64961	8/1/2014 3:42:00 PM		
1407279-04C	5	6020A_S	SAMP	64961	8/1/2014 3:44:00 PM		
1407279-06C	5	6020A_S	SAMP	64961	8/1/2014 3:46:00 PM		
1407279-07C	5	6020A_S	SAMP	64961	8/1/2014 3:48:00 PM		
1407279-08C	5	6020A_S	SAMP	64961	8/1/2014 3:49:00 PM		
1407279-09C	5	6020A_S	SAMP	64961	8/1/2014 3:51:00 PM		
1407279-10C	5	6020A_S	SAMP	64961	8/1/2014 3:53:00 PM		
1407279-17C PDS	5	6020A_S	PDS	64961	8/1/2014 3:55:00 PM		S-flag Ba; SD passes, data accepted
1407279-17C MS	5	6020A_S	MS	64961	8/1/2014 3:57:00 PM		
1407279-17C MSD	5	6020A_S	MSD	64961	8/1/2014 3:59:00 PM		S-flag Ba
CCV5-140801	1	6020A_W	CCV	R74662	8/1/2014 4:05:00 PM		
LCVL5-140801	1	6020A_W	LCVL	R74662	8/1/2014 4:09:00 PM		
CCB5-140801	1	6020A_W	CCB	R74662	8/1/2014 4:13:00 PM		
1407279-11C	5	6020A_S	SAMP	64961	8/1/2014 4:16:00 PM		
1407279-12C	5	6020A_S	SAMP	64961	8/1/2014 4:18:00 PM		
1407279-13C	5	6020A_S	SAMP	64961	8/1/2014 4:20:00 PM		
1407279-14C	5	6020A_S	SAMP	64961	8/1/2014 4:22:00 PM		
1407279-15C	5	6020A_S	SAMP	64961	8/1/2014 4:24:00 PM		
1407279-16C	5	6020A_S	SAMP	64961	8/1/2014 4:26:00 PM		
1407279-18C	5	6020A_S	SAMP	64961	8/1/2014 4:28:00 PM		
1407279-19C	5	6020A_S	SAMP	64961	8/1/2014 4:30:00 PM		
1407279-20C	5	6020A_S	SAMP	64961	8/1/2014 4:32:00 PM		
1407279-21C	5	6020A_S	SAMP	64961	8/1/2014 4:33:00 PM		
CCV6-140801	1	6020A_W	CCV	R74662	8/1/2014 4:46:00 PM		
LCVL6-140801	1	6020A_W	LCVL	R74662	8/1/2014 4:51:00 PM		
CCB6-140801	1	6020A_W	CCB	R74662	8/1/2014 4:55:00 PM		
MB-64964	5	6020A_S	MBLK	64964	8/1/2014 4:57:00 PM		
LCS-64964	5	6020A_S	LCS	64964	8/1/2014 4:59:00 PM		
LCSD-64964	5	6020A_S	LCSD	64964	8/1/2014 5:01:00 PM		
1407279-28C	5	6020A_S	SAMP	64964	8/1/2014 5:05:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140717	ICPMS CCV 200/5000 PPB		10/15/2014
MET-H2CAL-1407	ICPMS High Cal2 2000ppb std 8		10/15/2014
MET-HCAL-14071	ICPMS High Cal 500ppb/10ppm s		10/15/2014
MET-ICV-140714	ICPMS ICV 100 ppb		10/12/2014
MET-IS-140718	INTERNAL STANDARD 1 PPM		10/16/2014
MET-L2CAL-14071	ICPMS Low Cal2 1/20ppb std 2		10/15/2014
MET-LCAL-140717	ICPMS Low Cal 10/200ppb std 3		10/15/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		10/15/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		10/15/2014
MET-MCAL-14071	ICPMS Mid Cal 250/5000ppb std		10/15/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140715	250 PPM Naturals+Al+Fe PDS		10/13/2014
MET-PDS-140717-	10 PPM CUSTOM PDS SOLUTI		10/15/2014
MET-PDS-140717-	10 PPM Ag+Sb PDS		10/15/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		10/16/2014

DHL Analytical, Inc.

Run ID: ICP-MS4_140801A **Run No.:** 74662

1407279-28C SD	25	6020A_S	SD	64964	8/1/2014 5:06:00 PM		R-flag Be, Se; PDS passes;data accepted
1407279-23C	5	6020A_S	SAMP	64964	8/1/2014 5:08:00 PM		
1407279-24C	5	6020A_S	SAMP	64964	8/1/2014 5:10:00 PM		
1407279-25C	5	6020A_S	SAMP	64964	8/1/2014 5:12:00 PM		
1407279-26C	5	6020A_S	SAMP	64964	8/1/2014 5:14:00 PM		
1407279-27C	5	6020A_S	SAMP	64964	8/1/2014 5:16:00 PM		
1407279-29C	5	6020A_S	SAMP	64964	8/1/2014 5:18:00 PM		
1407279-28C PDS	5	6020A_S	PDS	64964	8/1/2014 5:26:00 PM		
1407279-28C MS	5	6020A_S	MS	64964	8/1/2014 5:28:00 PM		S-flag Sb, Ba, Be
1407279-28C MSD	5	6020A_S	MSD	64964	8/1/2014 5:29:00 PM		S-flag Sb, Ba, Be
CCV7-140801	1	6020A_W	CCV	R74662	8/1/2014 5:55:00 PM		
LCVL7-140801	1	6020A_W	LCVL	R74662	8/1/2014 5:59:00 PM		
CCB7-140801	1	6020A_W	CCB	R74662	8/1/2014 6:03:00 PM		
1407355-01A	5	6020A_S	SAMP	64964	8/1/2014 6:21:00 PM		
1407355-02A	5	6020A_S	SAMP	64964	8/1/2014 6:22:00 PM		
CCV8-140801	1	6020A_W	CCV	R74662	8/1/2014 6:46:00 PM		
LCVL8-140801	1	6020A_W	LCVL	R74662	8/1/2014 6:51:00 PM		
CCB8-140801	1	6020A_W	CCB	R74662	8/1/2014 6:53:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-140717	ICPMS CCV 200/5000 PPB		10/15/2014
MET-H2CAL-1407	ICPMS High Cal2 2000ppb std 8		10/15/2014
MET-HCAL-14071	ICPMS High Cal 500ppb/10ppm s		10/15/2014
MET-ICV-140714	ICPMS ICV 100 ppb		10/12/2014
MET-IS-140718	INTERNAL STANDARD 1 PPM		10/16/2014
MET-L2CAL-14071	ICPMS Low Cal2 1/20ppb std 2		10/15/2014
MET-LCAL-140717	ICPMS Low Cal 10/200ppb std 3		10/15/2014
MET-LCAL10X-14	ICPMS Low Cal 10/200ppb std 4		10/15/2014
MET-LCAL5X-140	ICPMS Low Cal 10/200ppb std 5		10/15/2014
MET-MCAL-14071	ICPMS Mid Cal 250/5000ppb std		10/15/2014
MET-PA-140430	ICPMS PA FACTOR SOLUTION		04/30/2015
MET-PDS-140715	250 PPM Naturals+Al+Fe PDS		10/13/2014
MET-PDS-140717-	10 PPM CUSTOM PDS SOLUTI		10/15/2014
MET-PDS-140717-	10 PPM Ag+Sb PDS		10/15/2014
MET-TUNECHK-1	TUNE CHECK 100 PPB SOLUTI		10/16/2014

Sample List

Batch Folder C:\Agilent\ICPMH\1\DATA\140801.b

Acquisition Order

#	Sequence Flow
1	Calibration Standards
2	Unknown Samples
3	Blank Samples

Calibration Standards:

#	Sample Type	Sample Name	Comment	Vial#	File Name
1	CCB		CAL ICPMS_TW	1101	
2	CCB		CAL ICPMS_TW	1101	
3	CCB		CAL ICPMS_TW	1101	
4	CCB		CAL ICPMS_TW	1102	
5	CCB		CAL ICPMS_TW	1102	
6	CCB		CAL ICPMS_TW	1102	
7	CCB		CAL ICPMS_TW	1102	
8	CCB		CAL ICPMS_TW	1103	
9	CCB		CAL ICPMS_TW	1103	
10	CCB		CAL ICPMS_TW	1103	
11	CCB		CAL ICPMS_TW	1103	
12	CalBlk	BLANK STD 1	CAL ICPMS_TW	2101	
13	CalStd	Cal01	CAL ICPMS_TW	2102	
14	CalStd	Cal02	CAL ICPMS_TW	2103	
15	CalStd	Cal03	CAL ICPMS_TW	2104	
16	CalStd	Cal04	CAL ICPMS_TW	2105	
17	CalStd	Cal05	CAL ICPMS_TW	2106	
18	CalStd	Cal06	CAL ICPMS_TW	2107	
19	CalStd	Cal07	CAL ICPMS_TW	2108	
20	ICB	BLANK	CCB ICPMS_TW	1101	

#	Level	Dilution	Skip
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12	1		
13	2		
14	3		
15	4		
16	5		
17	6		
18	7		
19	8		

Sample List

#	Sample Type	Sample Name	Comment	Vial#	File Name
20					
21	ICB	BLANK	CCB ICPMS_TW	1102	
22	ICSA	ICSA-140801	ICSAICPMS_TW	2109	
23	ICSA	ICSA-140801	ICSAICPMS_TW	2109	
24	ICSA	ICSA-140801	ICSAICPMS_TW	2109	
25	ICSB	ICSAB-140801	ICSBICPMS_TW	2110	
26	ICB	BLANK	CCB ICPMS_TW	1101	
27	ICB	BLANK	CCB ICPMS_TW	1102	
28	ICSA	ICSA-140801	ICSAICPMS_TW	2109	
29	ICSA	ICSA-140801	ICSAICPMS_TW	2109	
30	CCB		CAL ICPMS_TW	1103	
31	CCB		CAL ICPMS_TW	1103	
32	CCB		CAL ICPMS_TW	1103	
33	CCB		CAL ICPMS_TW	1103	
34	CalBlk	BLANK STD 1	CAL ICPMS_TW	2101	
35	CalStd	Cal01	CAL ICPMS_TW	2102	
36	CalStd	Cal02	CAL ICPMS_TW	2103	
37	CalStd	Cal03	CAL ICPMS_TW	2104	
38	CalStd	Cal04	CAL ICPMS_TW	2105	
39	CalStd	Cal05	CAL ICPMS_TW	2106	
40	CalStd	Cal06	CAL ICPMS_TW	2107	

#	Level	Dilution	Skip
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
34	1		
35	2		
36	3		
37	4		
38	5		
39	6		
40	7		

#	Sample Type	Sample Name	Comment	Vial#	File Name
41	CalStd	Cal07	CAL ICPMS_TW	2108	
42	ICB	BLANK	CCB ICPMS_TW	1101	
43	ICB	BLANK	CCB ICPMS_TW	1102	
44	ICSA	ICSA-140801	ICSAICPMS_TW	2109	
45	ICB	BLANK	CCB ICPMS_TW	1101	

Sample List

46	ICB	BLANK	CCB ICPMS_TW	1102
47	ICSA	ICSA-140801	ICSAICPMS_TW	2109
48	ICB	BLANK	CCB ICPMS_TW	1101
49	ICB	BLANK	CCB ICPMS_TW	1103
50	ICB	BLANK	CCB ICPMS_TW	1103
51	ICSA	ICSA-140801	ICSAICPMS_TW	2109
52	ICSB	ICSAB-140801	ICSBICPMS_TW	2110
53	ICB	BLANK	CCB ICPMS_TW	1101
54	ICB	BLANK	CCB ICPMS_TW	1102
55	ICV	ICV-140801	ICV ICPMS_TW	2111
56	ICV	ICV-140801	ICV ICPMS_TW	2111
57	ICB	ICB-140801	ICB ICPMS_TW	1101
58	LLICV	LCVL-140801	LCVLICPMS_TW	2112
59	ICB	ICB-140801	ICB ICPMS_TW	1102
60	ICB	ICB-140801	ICB ICPMS_TW	1103

#	Level	Dilution	Skip
41	8		
42			
43			
44			
45			
46			
47			
48			
49			
50			
51			
52			
53			
54			
55			
56			
57			
58			
59			
60			

#	Sample Type	Sample Name	Comment	Vial#	File Name
61	PB_W	MB-64943	MBLK6020A_W	2201	
62	LCS_W	LCS-64943	LCS 6020A_W	2202	
63	LCS_W	LCSD-64943	LCSD6020A_W	2203	
64	CCB	RINSE	CCB ICPMS_TW	1101	
65	AllRef	1407285-01A	SAMP6020A_W	2204	
66	SD	1407285-01A SD	SD 6020A_W	2205	
67	SAMP_W	1407285-02A	SAMP6020A_W	2206	
68	SAMP_W	1407285-03A	SAMP6020A_W	2207	
69	SAMP_W	1407303-01A	SAMP6020A_W	2208	
70	SAMP_W	1407303-02A	SAMP6020A_W	2209	
71	SAMP_W	1407303-03A	SAMP6020A_W	2210	
72	SAMP_W	1407303-04A	SAMP6020A_W	2211	
73	SAMP_W	1407278-14A	SAMP6020A_W	2212	

Sample List

74	SAMP_W	1407278-15A	SAMP6020A_W	2301
75	SAMP_W	1407278-16A	SAMP6020A_W	2302
76	PDS	1407285-01A PDS	PDS 6020A_W	2303
77	MS_W	1407285-01A MS	MS 6020A_W	2304
78	MS_W	1407285-01A MSD	MSD 6020A_W	2305
79	CCV	CCV1-140801	CCV ICPMS_TW	1207
80	CCB	CCB1-140801	CCB ICPMS_TW	1102

#	Level	Dilution	Skip
61		1	
62		1	
63		1	
64			
65		1	
66		5	
67		1	
68		1	
69		1	
70		1	
71		1	
72		1	
73		1	
74		1	
75		1	
76		1	
77		1	
78		1	
79			
80			

#	Sample Type	Sample Name	Comment	Vial#	File Name
81	LLCCV	LCVL1-140801	LCVLICPMS_TW	2112	
82	CCB	CCB1-140801	CCB ICPMS_TW	1103	
83	AllRef	1407285-01A	SAMP6020A_W	2501	
84	SD	1407285-01A SD	SD 6020A_W	2502	
85	PDS	1407285-01A PDS	PDS 6020A_W	2503	
86	SAMP_W	1407278-17A	SAMP6020A_W	2401	
87	SAMP_W	1407278-18A	SAMP6020A_W	2402	
88	SAMP_W	1407278-19A	SAMP6020A_W	2403	
89	SAMP_W	1407278-20A	SAMP6020A_W	2404	
90	SAMP_W	1407278-21A	SAMP6020A_W	2405	
91	SAMP_W	1407278-22A	SAMP6020A_W	2406	
92	SAMP_W	1407278-23A	SAMP6020A_W	2407	
93	SAMP_W	1407278-24A	SAMP6020A_W	2408	
94	SAMP_W	1407280-01A	SAMPICPMS_TW	2409	
95	AllRef	1407285-01A	SAMP6020A_W	2501	
96	SD	1407285-01A SD	SD 6020A_W	2502	
97	PDS	1407285-01A PDS	PDS 6020A_W	2503	
98	CCV	CCV2-140801	CCV ICPMS_TW	1207	
99	CCB	CCB2-140801	CCB ICPMS_TW	1102	
100	LLCCV	LCVL2-140801	LCVLICPMS_TW	2112	

Sample List

#	Level	Dilution	Skip
81			
82			
83		10	
84		50	
85		10	
86		1	
87		1	
88		1	
89		1	
90		1	
91		1	
92		1	
93		1	
94		1	
95		100	
96		500	
97		100	
98			
99			
100			

#	Sample Type	Sample Name	Comment	Vial#	File Name
101	CCB	CCB2-140801	CCB ICPMS_TW	1102	
102	CCB	CCB2-140801	CCB ICPMS_TW	1103	
103	LLCCV	LCVL2-140801	LCVLICPMS_TW	2112	
104	CCB	CCB2-140801	CCB ICPMS_TW	1102	
105	CCB	CCB2-140801	CCB ICPMS_TW	1103	
106	CCB	CCB2-140801	CCB ICPMS_TW	1102	
107	CCB	CCB2-140801	CCB ICPMS_TW	1103	
108	CCB	CCB2-140801	CCB ICPMS_TW	1102	
109	CCB	CCB2-140801	CCB ICPMS_TW	1103	
110	CCB	CCB2-140801	CCB ICPMS_TW	1102	
111	CCB	CCB2-140801	CCB ICPMS_TW	1103	
112	LLCCV	LCVL2-140801	LCVLICPMS_TW	2512	
113	CCB	CCB2-140801	CCB ICPMS_TW	1103	
114	CCB	CCB2-140801	CCB ICPMS_TW	1103	
115	PB	MB-64956	MBLK6020A_S	3101	
116	LCS_S	LCS-64956	LCS 6020A_S	3102	
117	LCS_S	LCSD-64956	LCSD6020A_S	3103	
118	CCB	RINSE	CCB ICPMS_TW	1101	
119	AllRef	1407273-17C	SAMP6020A_S	3104	
120	SD	1407273-17C SD	SD 6020A_S	3105	

#	Level	Dilution	Skip
101			
102			
103			
104			
105			
106			
107			

Sample List

108					
109					
110					
111					
112					
113					
114					
115		5			
116		5			
117		5			
118					
119		5			
120		25			
#	**Sample Type**	**Sample Name**	**Comment**	**Vial#**	**File Name**
121	Sample	1407273-24C	SAMP6020A_S	3106	
122	Sample	1407273-25C	SAMP6020A_S	3107	
123	Sample	1407273-26C	SAMP6020A_S	3108	
124	Sample	1407273-27C	SAMP6020A_S	3109	
125	Sample	1407273-28C	SAMP6020A_S	3110	
126	Sample	1407273-29C	SAMP6020A_S	3111	
127	Sample	1407207-05A	SAMPICPMS_TS	3112	
128	Sample	1407207-08A	SAMPICPMS_TS	3201	
129	Sample	1407207-16A	SAMPICPMS_TS	3202	
130	PDS	1403262-06A PDS	PDS 6020A_S	3203	
131	MS_S	1403262-06A MS	MS 6020A_S	3204	
132	MS_S	1403262-06A MSD	MSD 6020A_S	3205	
133	CCV	CCV3-140801	CCV ICPMS_TW	1207	
134	CCB	CCB3-140801	CCB ICPMS_TW	1102	
135	LLCCV	LCVL3-140801	LCVLICPMS_TW	2512	
136	CCB	CCB3-140801	CCB ICPMS_TW	1103	
137	AllRef	1407285-01A	SAMP6020A_W	3501	
138	SD	1407285-01A SD	SD 6020A_W	3502	
139	PDS	1407285-01A PDS	PDS 6020A_W	3503	
140	SAMP_W	1407280-01A	SAMPICPMS_TW	3504	

#	Level	Dilution	Skip
121		5	
122		5	
123		5	
124		5	
125		5	
126		5	
127		5	
128		5	
129		100	
130		5	
131		5	
132		5	
133			
134			
135			

Sample List

136					
137		100			
138		500			
139		100			
140		500			

#	Sample Type	Sample Name	Comment	Vial#	File Name
141	Sample	1407207-17A	SAMPICPMS_TS	3206	
142	Sample	1407207-19A	SAMPICPMS_TS	3207	
143	Sample	1407207-22A	SAMPICPMS_TS	3208	
144	Sample	1407207-25A	SAMPICPMS_TS	3209	
145	Sample	1407207-28A	SAMPICPMS_TS	3210	
146	Sample	1407249-01A	SAMPICPMS_TS	3211	
147	Sample	1407249-07A	SAMPICPMS_TS	3212	
148	Sample	1407249-13A	SAMPICPMS_TS	3301	
149	CCV	CCV4-140801	CCV ICPMS_TW	1207	
150	CCB	CCB4-140801	CCB ICPMS_TW	1102	
151	LLCCV	LCVL4-140801	LCVLICPMS_TW	2512	
152	CCB	CCB4-140801	CCB ICPMS_TW	1103	
153	PB	MB-64961	MBLK6020A_S	4101	
154	LCS_S	LCS-64961	LCS 6020A_S	4102	
155	LCS_S	LCSD-64961	LCSD6020A_S	4103	
156	CCB	RINSE	CCB ICPMS_TW	1101	
157	AllRef	1407279-17C	SAMP6020A_S	4104	
158	SD	1407279-17C SD	SD 6020A_S	4105	
159	Sample	1407217-12A	SAMPICPMS_TS	4106	
160	Sample	1407279-02C	SAMP6020A_S	4107	

#	Level	Dilution	Skip
141		5	
142		5	
143		5	
144		5	
145		5	
146		5	
147		5	
148		5	
149			
150			
151			
152			
153		5	
154		5	
155		5	
156			
157		5	
158		25	
159		5	
160		5	

#	Sample Type	Sample Name	Comment	Vial#	File Name
161	Sample	1407279-03C	SAMP6020A_S	4108	

Sample List

162	Sample	1407279-04C	SAMP6020A_S	4109
163	Sample	1407279-06C	SAMP6020A_S	4110
164	Sample	1407279-07C	SAMP6020A_S	4111
165	Sample	1407279-08C	SAMP6020A_S	4112
166	Sample	1407279-09C	SAMP6020A_S	4201
167	Sample	1407279-10C	SAMP6020A_S	4202
168	PDS	1407279-17C PDS	PDS 6020A_S	4203
169	MS_S	1407279-17C MS	MS 6020A_S	4204
170	MS_S	1407279-17C MSD	MSD 6020A_S	4205
171	CCV	CCV5-140801	CCV ICPMS_TW	1207
172	CCV	CCV5-140801	CCV ICPMS_TW	1207
173	CCB	CCB5-140801	CCB ICPMS_TW	1102
174	LLCCV	LCVL5-140801	LCVLICPMS_TW	2511
175	CCB	CCB5-140801	CCB ICPMS_TW	1103
176	Sample	1407279-11C	SAMP6020A_S	4206
177	Sample	1407279-12C	SAMP6020A_S	4207
178	Sample	1407279-13C	SAMP6020A_S	4208
179	Sample	1407279-14C	SAMP6020A_S	4209
180	Sample	1407279-15C	SAMP6020A_S	4210

#	Level	Dilution	Skip
161		5	
162		5	
163		5	
164		5	
165		5	
166		5	
167		5	
168		5	
169		5	
170		5	
171			
172			
173			
174			
175			
176		5	
177		5	
178		5	
179		5	
180		5	

#	Sample Type	Sample Name	Comment	Vial#	File Name
181	Sample	1407279-16C	SAMP6020A_S	4211	
182	Sample	1407279-18C	SAMP6020A_S	4212	
183	Sample	1407279-19C	SAMP6020A_S	4301	
184	Sample	1407279-20C	SAMP6020A_S	4302	
185	Sample	1407279-21C	SAMP6020A_S	4303	
186	CCV	CCV6-140801	CCV ICPMS_TW	1207	
187	CCV	CCV6-140801	CCV ICPMS_TW	1207	
188	CCV	CCV6-140801	CCV ICPMS_TW	1207	
189	CCB	CCB6-140801	CCB ICPMS_TW	1102	

Sample List

190	CCV	CCV6-140801	CCV ICPMS_TW	1207
191	CCV	CCV6-140801	CCV ICPMS_TW	1207
192	CCB	CCB6-140801	CCB ICPMS_TW	1102
193	LLCCV	LCVL6-140801	LCVLICPMS_TW	2511
194	CCB	CCB6-140801	CCB ICPMS_TW	1103
195	CCB	CCB6-140801	CCB ICPMS_TW	1102
196	PB	MB-64964	MBLK6020A_S	4304
197	LCS_S	LCS-64964	LCS 6020A_S	4305
198	LCS_S	LCSD-64964	LCSD6020A_S	4306
199	CCB	RINSE	CCB ICPMS_TW	1101
200	AllRef	1407279-28C	SAMP6020A_S	4307

#	Level	Dilution	Skip
181		5	
182		5	
183		5	
184		5	
185		5	
186			
187			
188			
189			
190			
191			
192			
193			
194			
195			
196		5	
197		5	
198		5	
199			
200		5	

#	Sample Type	Sample Name	Comment	Vial#	File Name
201	SD	1407279-28C SD	SD 6020A_S	4308	
202	Sample	1407279-23C	SAMP6020A_S	4309	
203	Sample	1407279-24C	SAMP6020A_S	4310	
204	Sample	1407279-25C	SAMP6020A_S	4311	
205	Sample	1407279-26C	SAMP6020A_S	4312	
206	Sample	1407279-27C	SAMP6020A_S	4401	
207	Sample	1407279-29C	SAMP6020A_S	4403	
208	Sample	1407315-01B	SAMPICPMS_TS	4404	
209	Sample	1407315-02B	SAMPICPMS_TS	4405	
210	Sample	1407315-03B	SAMP6020A_S	4409	
211	PDS	1407279-28C PDS	PDS 6020A_S	4406	
212	MS_S	1407279-28C MS	MS 6020A_S	4407	
213	MS_S	1407279-28C MSD	MSD 6020A_S	4408	
214	CCV	CCV7-140801	CCV ICPMS_TW	1207	
215	CCV	CCV7-140801	CCV ICPMS_TW	1207	
216	CCV	CCV7-140801	CCV ICPMS_TW	1207	
217	CCB	CCB7-140801	CCB ICPMS_TW	1102	

Sample List

218	CCV	CCV7-140801	CCV ICPMS_TW	1207
219	CCV	CCV7-140801	CCV ICPMS_TW	1207
220	CCV	CCV7-140801	CCV ICPMS_TW	1207

#	Level	Dilution	Skip
201		25	
202		5	
203		5	
204		5	
205		5	
206		5	
207		5	
208		5	
209		5	
210		5	
211		5	
212		5	
213		5	
214			
215			
216			
217			
218			
219			
220			

#	Sample Type	Sample Name	Comment	Vial#	File Name
221	CCB	CCB7-140801	CCB ICPMS_TW	1102	
222	LLCCV	LCVL7-140801	LCVLICPMS_TW	2511	
223	CCB	CCB7-140801	CCB ICPMS_TW	1103	
224	CCB	CCB7-140801	CCB ICPMS_TW	1102	
225	Sample	1407315-04B	SAMP6020A_S	4409	
226	Sample	1407315-05B	SAMP6020A_S	4410	
227	Sample	1407315-06B	SAMP6020A_S	4411	
228	Sample	1407315-07B	SAMP6020A_S	4412	
229	Sample	1407315-08B	SAMP6020A_S	4501	
230	Sample	1407315-09B	SAMP6020A_S	4502	
231	Sample	1407315-10B	SAMP6020A_S	4503	
232	Sample	1407315-11B	SAMP6020A_S	4504	
233	Sample	1407355-01A	SAMP6020A_S	4505	
234	Sample	1407355-02A	SAMP6020A_S	4506	
235	CCV	CCV8-140801	CCV ICPMS_TW	1207	
236	CCV	CCV8-140801	CCV ICPMS_TW	1207	
237	CCV	CCV8-140801	CCV ICPMS_TW	1207	
238	CCV	CCV8-140801	CCV ICPMS_TW	1207	
239	CCV	CCV8-140801	CCV ICPMS_TW	1207	
240	CCB	CCB9-140801	CCB ICPMS_TW	1103	

#	Level	Dilution	Skip
221			
222			
223			

Sample List

224					
225		5			
226		5			
227		5			
228		5			
229		5			
230		5			
231		5			
232		5			
233		5			
234		5			
235					
236					
237					
238					
239					
240					

#	Sample Type	Sample Name	Comment	Vial#	File Name
241	CCB	CCB9-140801	CCB ICPMS_TW	1103	
242	CCV	CCV8-140801	CCV ICPMS_TW	1207	
243	CCV	CCV8-140801	CCV ICPMS_TW	1207	
244	CCB	CCB8-140801	CCB ICPMS_TW	1102	
245	LLCCV	LCVL8-140801	LCVLICPMS_TW	2511	
246	CCB	CCB8-140801	CCB ICPMS_TW	1103	
247	Sample	1407315-05B	SAMP6020A_S	4507	
248	Sample	1407315-07B	SAMP6020A_S	4508	
249	Sample	1407315-08B	SAMP6020A_S	4509	
250	Sample	1407315-11B	SAMP6020A_S	4510	
251	Sample	1407315-05B	SAMP6020A_S	4511	
252	Sample	1407315-07B	SAMP6020A_S	4512	
253	CCV	CCV8-140801	CCV ICPMS_TW	1207	
254	CCV	CCV8-140801	CCV ICPMS_TW	1207	
255	CCV	CCV8-140801	CCV ICPMS_TW	1207	
256	CCV	CCV8-140801	CCV ICPMS_TW	1207	
257	CCV	CCV8-140801	CCV ICPMS_TW	1207	
258	CCB	CCB9-140801	CCB ICPMS_TW	1102	
259	LLCCV	LCVL9-140801	LCVLICPMS_TW	2512	
260	CCB	CCB9-140801	CCB ICPMS_TW	1102	

#	Level	Dilution	Skip
241			
242			
243			
244			
245			
246			
247		100	
248		100	
249		100	
250		100	
251		500	

Sample List

252		500
253		
254		
255		
256		
257		
258		
259		
260		

#	Sample Type	Sample Name	Comment	Vial#	File Name
261	CCB	CCB9-140801	CCB ICPMS_TW	1102	
262	CCB	CCB9-140801	CCB ICPMS_TW	1102	

#	Level	Dilution	Skip
261			
262			

Unknown Samples:

Blank Samples:

Periodic Block

#	Block Name	Period	Unit	Reset By

Sublist

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/30/2014 9:59:58 AM**
Digestion: **Start: 7/30/2014 10:43:00 AM / Stop: 7/30/2014 4:43:00 PM**
Prep End Date: **7/30/2014 4:45:00 PM**

Prep Batch **64943** Prep Code: **3005A** Technician: **Matthew Kuhaneck**

Prep Factor Units: **mL/mL**

Equipment List
Thermometer #71
Hot Block #4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #
1407278-14A	Equip Blank		50	50	1.000	1 of 1
1407278-15A	Aqueous		50	50	1.000	1 of 1
1407278-16A	Aqueous		50	50	1.000	1 of 1
1407278-17A	Aqueous		50	50	1.000	1 of 1
1407278-18A	Aqueous		50	50	1.000	1 of 1
1407278-19A	Aqueous		50	50	1.000	1 of 1
1407278-20A	Aqueous		50	50	1.000	1 of 1
1407278-21A	Aqueous		50	50	1.000	1 of 1
1407278-22A	Aqueous		50	50	1.000	1 of 1
1407278-23A	Aqueous		50	50	1.000	1 of 1
1407278-24A	Aqueous		50	50	1.000	1 of 1
1407280-01A	Aqueous		50	50	1.000	1 of 1
1407285-01A	Aqueous		50	50	1.000	1 of 3
1407285-01A MS	Aqueous		50	50	1.000	of
1407285-01A MSD	Aqueous		50	50	1.000	of
1407285-01A PDS	Aqueous		50	50	1.000	of
1407285-01A SD	Aqueous		50	50	1.000	of
1407285-02A	Aqueous		50	50	1.000	1 of 1
1407285-03A	Aqueous		50	50	1.000	1 of 1
1407303-01A	Aqueous		50	50	1.000	1 of 1
1407303-02A	Aqueous		50	50	1.000	1 of 1
1407303-03A	Aqueous		50	50	1.000	1 of 1
1407303-04A	Aqueous		50	50	1.000	1 of 1
More coming-do not start batch til 20 samples arrive						
LCS-64943	Aqueous		50	50	1.000	of
LCSD-64943	Aqueous		50	50	1.000	of
MB-64943	Aqueous		50	50	1.000	of

Number	Reagent Name	Amt	Units	Exp. Date
8095	Hydrochloric Acid (Trace Metal Grade)	1	ml	07/05/2016
8144	Digestion Vessels	69	ml	11/10/2014
8198	Nitric Acid (Trace Metal Grade)	1	ml	12/24/2015

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-140109-01	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/06/2015
MET-140109-02	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	03/10/2015
MET-SPIKE-140716-3	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	08/16/2014
MET-SPIKE-140724-1	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MS	0.2	08/24/2014
MET-SPIKE-140724-2	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	08/24/2014

REVIEWED
By Evelyn Ferrero at 11:32:24 AM, 8/4/2014

Calibration Summary Report

Date Acquired 8/1/2014 10:38
Data Batch 140801.b

Level	Calibration File Name
1	034CALB.d
2	035CALS.d
3	036CALS.d
4	037CALS.d
5	038CALS.d
6	039CALS.d
7	040CALS.d
8	041CALS.d

Calibration Table

Ele	Corr Coef	Curve Equation
As	1.0000	y = 0.0013 * x + 1.7955E-004
Be	0.9999	y = 4.6078E-005 * x + 7.6006E-007
B	0.9999	y = 2.1828E-005 * x + 7.2052E-005
Na	1.0000	y = 5.4914E-004 * x + 0.0237
Mg	1.0000	y = 2.7674E-004 * x + 7.1170E-004
Al	1.0000	y = 1.2639E-004 * x + 0.0012
K	0.9999	y = 3.1701E-004 * x + 0.0317
Ca	1.0000	y = 2.0714E-005 * x + 3.6023E-004
Ti	0.9999	y = 1.3577E-004 * x + 8.8462E-006
V	0.9999	y = 0.0045 * x + 0.0040
Cr	0.9998	y = 0.0055 * x + 0.0028
Mn	0.9999	y = 0.0034 * x + 2.2885E-004
Fe	1.0000	y = 0.0050 * x + 0.0211
Co	0.9999	y = 0.0110 * x + 1.3022E-004
Ni	1.0000	y = 0.0030 * x + 0.0010
Cu	0.9998	y = 0.0080 * x + 0.0013
Zn	1.0000	y = 0.0017 * x + 6.1961E-004
Se	1.0000	y = 9.5743E-005 * x + 3.2291E-005
Sr	0.9999	y = 5.8701E-004 * x + 4.1091E-005
Mo	0.9999	y = 4.6747E-004 * x + 1.4904E-004
Ag	1.0000	y = 0.0015 * x + 9.8322E-006
Cd	1.0000	y = 2.4798E-004 * x + 9.3119E-007
Sn	0.9998	y = 5.1694E-004 * x + 7.8320E-005
Sb	1.0000	y = 8.2011E-004 * x + 1.1173E-005
Tl	1.0000	y = 0.0015 * x + 3.5142E-005
Ba	1.0000	y = 2.7756E-004 * x + 1.4081E-005
Pb	0.9999	y = 0.0020 * x + 2.1436E-004

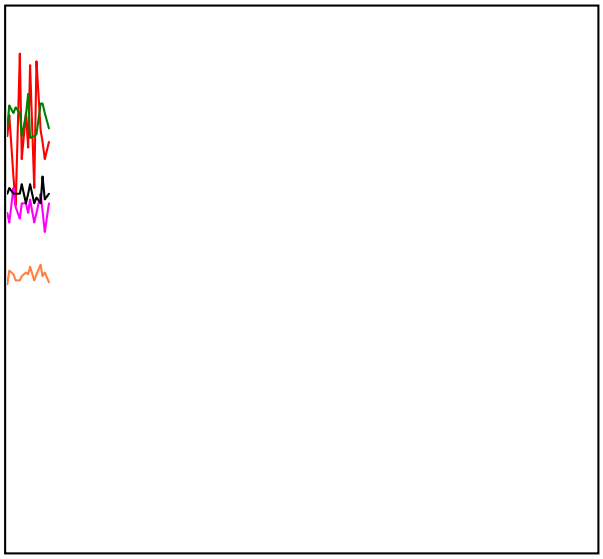
Level 7 Cal

Ele	Conc	Calc	%Rec
As	500	487.24	97
Be	500	524.87	105
B	500	524.10	105
Na	10000	10107.08	101
Mg	10000	10194.30	102
Al	10000	9990.00	100
K	10000	10272.07	103
Ca	10000	9991.85	100
Ti	500	519.14	104
V	500	527.97	106
Cr	500	534.69	107
Mn	500	530.77	106
Fe	10000	9997.84	100
Co	500	517.77	104
Ni	500	509.29	102
Cu	500	530.16	106
Zn	500	495.58	99
Se	500	508.47	102
Sr	500	528.05	106
Mo	500	519.94	104
Ag	500	497.82	100
Cd	500	500.22	100
Sn	500	532.22	106
Sb	500	501.38	100
Tl	500	517.37	103
Ba	500	500.56	100
Pb	500	519.91	104

Level 8 Cal

Ele	Conc	Calc	%Rec
As	2000	2004.21	100
Be	2000	1992.01	100
B	2000	1991.95	100
Na	25000	24927.10	100
Mg	25000	24891.62	100
K	25000	24857.54	101
Ti	2000	1994.01	100
V	2000	1992.01	100
Cr	2000	1989.59	101
Mn	2000	1991.44	100
Co	2000	1992.63	100
Ni	2000	1996.15	100
Cu	2000	1989.39	101
Zn	2000	2000.98	100
Se	2000	1997.26	100
Sr	2000	1993.07	100
Mo	2000	1994.77	100
Cd	2000	1999.69	100
Sn	2000	1990.56	100
Tl	2000	1994.70	100
Ba	2000	1999.79	100
Pb	2000	1993.69	100

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
51/59	20	15.036 %	15.381 %	10.86
59	1000	778	796.9	3.33
89	2000	986	1014.0	2.00
140	5000	3193	3139.9	3.44
205	5000	3279	3287.7	2.22
156/140	1	0.658 %	0.623 %	22.20
51	200	117	122.5	10.51
56	50000	25240	24637.6	1.82
75	20	5	3.2	90.88
78	20	3	1.6	84.52
Integration Time [sec]		0.10		

## Plasma Parameters ##			
RF Power	1550	Carrier Gas	0.85
RF Matching	1.90	Option Gas	0.0
Smpl Depth	8.0	Nebulizer Pump	0.10
S/C Temp	2		
## Lenses Parameters ##			
Extract 1	0.0	Omega Lens	12.0
Extract 2	-200.0	Cell Entrance	-40
Omega Bias	-90	Cell Exit	-60
Deflect	0.0		
## Cell Parameters ##			
Use Gas	true	3rd Gas Flow	0
He Flow	4.5	OctP Bias	-18.0
H2 Flow	0.0	OctP RF	150
Energy Discrimination	3.0		
## Qpole Parameters ##			
Mass Gain	131	Axis Gain	1.0004
Mass Offset	126	Axis Offset	-0.08
QP Bias	-15.0		
## Torch Axis Parameters ##			
Torch H	-0.2	Torch V	0.2
## EM Parameters ##			

Current Signal

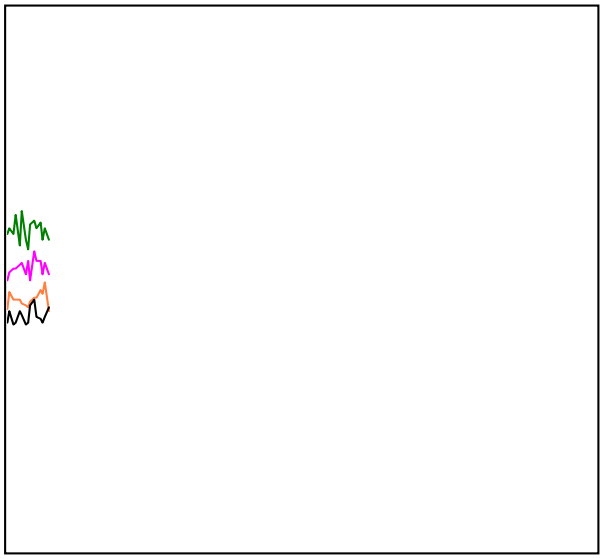
Discriminator	5.7	Analog HV	1558
Pulse HV	1216		

Meters

Current Signal

Mass	Range	Count	Avg. Count	RSD [%]	
Water Temp	17.6	℃	Carrier Gas	0.86	L/min
MU./Dil. Gas	0.20	L/min	Reflected Power	6	W
Forward Power	1550	W			

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
59	2000	1146	1177.7	3.44
89	5000	2204	2316.3	3.08
140	5000	2549	2603.3	2.82
205	5000	2251	2162.4	3.35
156/140	2	1.491 %	1.308 %	24.87
51	50000	20806	21214.9	2.29
56	500000	195730	198965.2	1.11
75	5000	2077	2173.7	3.12
78	500	422	450.3	5.79

Integration Time [sec] 0.10

Plasma Parameters

RF Power	1550	Carrier Gas	0.65
RF Matching	1.90	Option Gas	0.0
Smpl Depth	8.0	Nebulizer Pump	0.10
S/C Temp	2		

Lenses Parameters

Extract 1	0.0	Omega Lens	12.0
Extract 2	-200.0	Cell Entrance	-30
Omega Bias	-90	Cell Exit	-60
Deflect	9.0		

Cell Parameters

Use Gas	false	3rd Gas Flow	0
He Flow	4.2	OctP Bias	-18.0
H2 Flow	0.0	OctP RF	150
Energy Discrimination	3.0		

Qpole Parameters

Mass Gain	132	Axis Gain	1.0003
Mass Offset	127	Axis Offset	0.00
QP Bias	-15.0		

Torch Axis Parameters

Torch H	-0.2	Torch V	0.2

EM Parameters

Discriminator	5.7	Analog HV	1558

Current Signal

Pulse HV	1216				

Meters

Water Temp	17.6	℃	Carrier Gas	0.65	L/min

Current Signal

Mass	Range	Count	Avg. Count	RSD [%]	
MU./Dil. Gas	0.40	L/min	Reflected Power	8	W
Forward Power	1548	W			

US EPA Tune Check Sample Report

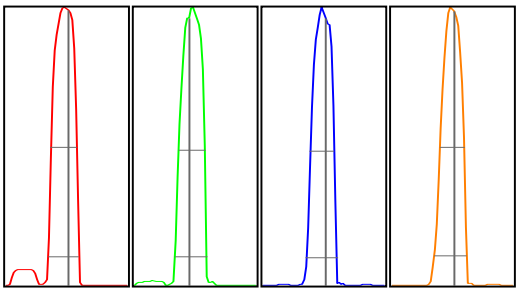
Batch Folder C:\Agilent\ICPMH\1\DATA\DHL TEMPLATE 1.b
Report Comment
Instrument Name ICPMS4 JP12361998

[No gas]

Mass	Count (Mean)	RSD% (Actual)	RSD% (Required)	RSD% (Flag)
7	531391	0.48	5.00	
59	1012582	0.56	5.00	
115	1907106	0.28	5.00	
205	1917943	0.49	5.00	

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
7	527158	531522	534029	532468	531775
59	1008606	1013367	1005378	1015993	1019566
115	1906518	1910169	1903206	1901274	1914363
205	1921686	1921657	1914635	1903368	1928367

Integration Time [sec] = 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	Width-X% (Actual)	Width-X% (Required)	Width-X% (Flag)
7	88883	7.05	6.9 - 7.1		0.756	0.850	
59	164904	58.90	58.9 - 59.1		0.762	0.850	
115	344390	115.05	114.9 - 115.1		0.723	0.850	
205	343659	205.05	204.9 - 205.1		0.793	0.850	

X% = 10 **Int Time [sec] =** 0.1 **Acq Time [sec] =** 135.05 **Y Axis =** Linear

Tune Parameters

Plasma Paramters

ParameterName	Value	Unit	ParameterName	Value	Unit
RF Power	1550	W	Nebulizer Pump	0.10	rps
RF Matching	1.90	V	S/C Temp	2	℃
Smpl Depth	8.0	mm	Gas Switch	Dilution Gas	
Carrier Gas	0.85	L/min	Makeup/Dilution Gas	0.20	L/min
Option Gas	0.0	%			

Lenses Parameters

ParameterName	Value	Unit	ParameterName	Value	Unit
Extract 1	0.0	V	Cell Entrance	-30	V
Extract 2	-200.0	V	Cell Exit	-60	V
Omega Bias	-90	V	Deflect	9.0	V
Omega Lens	12.0	V	Plate Bias	-60	V

Cell Parameters

ParameterName	Value	Unit	ParameterName	Value	Unit
Use Gas	false		OctP Bias	-18.0	V
He Flow	0.0	mL/min	OctP RF	150	V
H2 Flow	0.0	mL/min	Energy Discrimination	3.0	V
3rd Gas Flow	0	%			

P/A Factor Tuning Report

Current Sample

Sample Name: BLANK STD 1
Data File: 034CALB.d
Acquired: 08/01/2014 10:38:08

Detector Parameters and P/A Factors

Discriminator: 5.7 mV
AnalogHV: 1558 V
PulseHV: 1216 V

Acquired: 08/01/2014 09:06:29

Mass[u]	Element	P/A Factor
6	Li	0.100274
9	Be	0.113176
23	Na	0.121661
24	Mg	0.124566
27	Al	0.127632
39	K	0.127870
45	Sc	0.129509
48		0.130403
51	V	0.131795
52	Cr	0.133390
55	Mn	0.134995
59	Co	0.136525
60	Ni	0.138601
63	Cu	0.139317
66	Zn	0.138924
72		0.138860
74	Ge	0.138610
75	As	0.138767
88	Sr	0.139855
89		0.137800
95		0.139052
97	Mo	0.140219
98	Mo	0.140337
99	[Mo]	0.141398
101		0.140962
105		0.141334
111	Cd	0.141966
114	Cd	0.143156
115	In	0.142946
118	Sn	0.140153
121		0.143348
123	Sb	0.143198
135	Ba	0.144268
138		0.143278
175		0.144886
193		0.145763
205	Tl	0.144913
206	[Pb]	0.146556
207	[Pb]	0.146743
208	Pb	0.146385
209	Bi	0.146935
232		0.145708
238	U	0.145853
44	Ca	Signal too low
78	Se	Signal too low
107	Ag	Signal too low
172		Signal too low

Calibration Blank Report

Date Acquired	8/1/2014 10:38	Sample Name	BLANK STD 1
Data Batch	140801.b	Comment	CAL ICPMS_TW
Data File Name	034CALB.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	1	173.21
11	B	45	63	29.30
23	Na	45	20819	3.04
24	Mg	45	626	12.89
27	Al	45	1078	2.67
39	K	45	27835	2.46
44	Ca	45	317	12.94
47	Ti	45	8	65.47
51	V	45	3488	5.80
52	Cr	45	2428	4.53
55	Mn	45	201	16.60
56	Fe	45	18564	2.11
59	Co	72	92	22.96
60	Ni	72	743	13.92
63	Cu	72	926	9.57
66	Zn	72	439	7.61
75	As	72	127	17.96
78	Se	72	23	30.99
88	Sr	115	343	10.81
95	Mo	115	1246	8.54
107	Ag	115	82	30.70
111	Cd	115	8	65.47
118	Sn	115	654	4.89
121	Sb	115	93	7.14
137	Ba	115	118	24.73
205	Tl	209	759	7.41
208	Pb	209	4633	1.12

QC ISTD Table

Mass	Name	CPS	%RSD
45	Sc	878942	0.18
72	Ge	708357	0.44
115	In	8356167	0.63
209	Bi	21610870	1.22

Calibration Standard Report

Date Acquired	8/1/2014 10:40	Sample Name	Cal01
Data Batch	140801.b	Comment	CAL ICPMS_TW
Data File Name	035CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	49	19.68
11	B	45	73	15.75
23	Na	45	30636	1.26
24	Mg	45	5774	1.33
27	Al	45	3271	0.51
39	K	45	32649	1.50
44	Ca	45	689	5.44
47	Ti	45	121	23.73
51	V	45	7622	1.71
52	Cr	45	7564	3.70
55	Mn	45	3197	2.01
56	Fe	45	104861	0.93
59	Co	72	8359	2.88
60	Ni	72	3086	2.82
63	Cu	72	6895	2.06
66	Zn	72	1522	6.24
75	As	72	1064	3.27
78	Se	72	110	8.79
88	Sr	115	5379	1.00
95	Mo	115	5106	2.89
107	Ag	115	12682	2.13
111	Cd	115	2152	1.94
118	Sn	115	5021	4.08
121	Sb	115	6860	1.37
137	Ba	115	2516	4.38
205	Tl	209	35104	0.12
208	Pb	209	50744	0.73

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	876993	0.15	878942	99.78	70	120	
72	Ge	701622	0.31	708357	99.05	70	120	
115	In	8342351	0.93	8356167	99.83	70	120	
209	Bi	21964267	0.68	21610870	101.64	70	120	

Calibration Standard Report

Date Acquired	8/1/2014 10:42	Sample Name	Cal02
Data Batch	140801.b	Comment	CAL ICPMS_TW
Data File Name	036CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	406	8.57
11	B	45	249	12.15
23	Na	45	119004	0.21
24	Mg	45	51004	1.80
27	Al	45	23513	0.65
39	K	45	83155	1.25
44	Ca	45	3952	4.84
47	Ti	45	1258	0.85
51	V	45	44062	2.24
52	Cr	45	52942	1.24
55	Mn	45	30550	0.96
56	Fe	45	890951	0.49
59	Co	72	82319	0.18
60	Ni	72	23379	1.92
63	Cu	72	60874	1.98
66	Zn	72	12126	2.75
75	As	72	9305	1.21
78	Se	72	716	7.32
88	Sr	115	49835	1.52
95	Mo	115	40534	1.07
107	Ag	115	124850	0.45
111	Cd	115	20986	1.37
118	Sn	115	45471	0.55
121	Sb	115	66517	0.99
137	Ba	115	23388	0.90
205	Tl	209	343124	0.72
208	Pb	209	467352	0.64

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	869018	0.72	878942	98.87	70	120	
72	Ge	695422	0.23	708357	98.17	70	120	
115	In	8315122	1.10	8356167	99.51	70	120	
209	Bi	21757276	0.71	21610870	100.68	70	120	

Calibration Standard Report

Date Acquired	8/1/2014 10:44	Sample Name	Cal03
Data Batch	140801.b	Comment	CAL ICPMS_TW
Data File Name	037CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	2056	1.86
11	B	45	1092	7.11
23	Na	45	502062	0.17
24	Mg	45	246064	0.34
27	Al	45	110115	1.48
39	K	45	302176	1.76
44	Ca	45	18202	1.67
47	Ti	45	6081	3.36
51	V	45	205019	1.31
52	Cr	45	253814	0.54
55	Mn	45	153686	1.18
56	Fe	45	4462950	1.21
59	Co	72	404487	0.91
60	Ni	72	111507	1.17
63	Cu	72	301687	1.44
66	Zn	72	59155	1.31
75	As	72	44724	0.41
78	Se	72	3364	3.86
88	Sr	115	244986	0.93
95	Mo	115	195555	0.87
107	Ag	115	617040	0.21
111	Cd	115	104931	0.27
118	Sn	115	224103	0.32
121	Sb	115	329081	0.83
137	Ba	115	116551	1.81
205	Tl	209	1746219	0.87
208	Pb	209	2306492	0.03

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	857804	1.28	878942	97.60	70	120	
72	Ge	693033	1.04	708357	97.84	70	120	
115	In	8228332	0.57	8356167	98.47	70	120	
209	Bi	21726547	0.65	21610870	100.54	70	120	

Calibration Standard Report

Date Acquired	8/1/2014 10:46	Sample Name	Cal04
Data Batch	140801.b	Comment	CAL ICPMS_TW
Data File Name	038CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	4091	1.42
11	B	45	2085	2.69
23	Na	45	986676	0.23
24	Mg	45	490402	0.34
27	Al	45	218909	0.22
39	K	45	569258	0.87
44	Ca	45	36026	1.20
47	Ti	45	12024	1.63
51	V	45	399672	0.25
52	Cr	45	492792	0.35
55	Mn	45	295305	0.76
56	Fe	45	8654789	0.40
59	Co	72	785421	0.27
60	Ni	72	216835	0.80
63	Cu	72	584990	0.52
66	Zn	72	114854	0.88
75	As	72	89156	0.43
78	Se	72	6731	2.57
88	Sr	115	482450	0.48
95	Mo	115	386657	1.14
107	Ag	115	1210325	0.65
111	Cd	115	207800	0.56
118	Sn	115	444666	0.71
121	Sb	115	652347	0.28
137	Ba	115	230308	0.40
205	Tl	209	3413384	1.06
208	Pb	209	4610011	0.99

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	847595	0.70	878942	96.43	70	120	
72	Ge	678875	0.79	708357	95.84	70	120	
115	In	8260658	1.97	8356167	98.86	70	120	
209	Bi	21638425	0.62	21610870	100.13	70	120	

Calibration Standard Report

Date Acquired	8/1/2014 10:47	Sample Name	Cal05
Data Batch	140801.b	Comment	CAL ICPMS_TW
Data File Name	039CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	10106	0.97
11	B	45	4840	0.91
23	Na	45	2372163	0.67
24	Mg	45	1185163	0.71
27	Al	45	530847	0.48
39	K	45	1396025	0.93
44	Ca	45	87060	1.12
47	Ti	45	29277	1.11
51	V	45	972014	0.60
52	Cr	45	1197558	0.49
55	Mn	45	716559	0.48
56	Fe	45	20896043	0.48
59	Co	72	1984821	0.95
60	Ni	72	520975	0.53
63	Cu	72	1452353	1.89
66	Zn	72	279560	0.35
75	As	72	218178	0.48
78	Se	72	16217	1.11
88	Sr	115	1177119	0.65
95	Mo	115	947648	0.27
107	Ag	115	2977428	1.24
111	Cd	115	500561	0.36
118	Sn	115	1076575	0.14
121	Sb	115	1641225	0.50
137	Ba	115	558271	0.24
205	Tl	209	8137335	1.24
208	Pb	209	11177821	0.66

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	837506	0.46	878942	95.29	70	120	
72	Ge	666970	0.33	708357	94.16	70	120	
115	In	8037473	0.91	8356167	96.19	70	120	
209	Bi	21170653	0.22	21610870	97.96	70	120	

Calibration Standard Report

Date Acquired	8/1/2014 10:49	Sample Name	Cal06
Data Batch	140801.b	Comment	CAL ICPMS_TW
Data File Name	040CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	20204	1.25
11	B	45	9617	1.51
23	Na	45	4656349	0.39
24	Mg	45	2357407	0.31
27	Al	45	1055863	0.50
39	K	45	2746800	0.95
44	Ca	45	173203	0.13
47	Ti	45	58889	0.30
51	V	45	1994843	0.36
52	Cr	45	2446163	2.39
55	Mn	45	1488685	1.16
56	Fe	45	41807661	0.56
59	Co	72	3803219	0.06
60	Ni	72	1024409	0.15
63	Cu	72	2846109	0.13
66	Zn	72	553555	0.22
75	As	72	437682	0.37
78	Se	72	32546	0.42
88	Sr	115	2460086	1.13
95	Mo	115	1930007	1.08
107	Ag	115	5764972	0.87
111	Cd	115	984416	0.30
118	Sn	115	2183834	1.30
121	Sb	115	3263191	0.56
137	Ba	115	1102663	0.18
205	Tl	209	15991905	0.84
208	Pb	209	21774195	1.11

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	835399	0.41	878942	95.05	70	120	
72	Ge	668100	0.26	708357	94.32	70	120	
115	In	7935969	0.66	8356167	94.97	70	120	
209	Bi	20515530	0.88	21610870	94.93	70	120	

Calibration Standard Report

Date Acquired	8/1/2014 10:51	Sample Name	Cal07
Data Batch	140801.b	Comment	CAL ICPMS_TW
Data File Name	041CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
9	Be	45	75960	0.46
11	B	45	36042	1.17
23	Na	45	11347462	0.69
24	Mg	45	5701457	2.25
27	Al	45	1716	9.03
39	K	45	6547499	1.39
44	Ca	45	460062	0.25
47	Ti	45	224053	0.30
51	V	45	7446685	0.53
52	Cr	45	9009950	1.33
55	Mn	45	5532745	0.84
56	Fe	45	38301	9.97
59	Co	72	14306869	1.23
60	Ni	72	3922737	0.61
63	Cu	72	10436561	1.16
66	Zn	72	2183464	0.54
75	As	72	1759480	0.90
78	Se	72	124899	0.54
88	Sr	115	8964552	0.89
95	Mo	115	7145901	1.13
107	Ag	115	2690	15.74
111	Cd	115	3799631	0.30
118	Sn	115	7884970	0.48
121	Sb	115	3093	3.88
137	Ba	115	4253065	0.38
205	Tl	209	60304895	0.25
208	Pb	209	81659944	0.56

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	827558	0.18	878942	94.15	70	120	
72	Ge	653047	0.43	708357	92.19	70	120	
115	In	7662353	0.57	8356167	91.70	70	120	
209	Bi	20067584	1.14	21610870	92.86	70	120	

Interference Check Solution A (ICS-A) Report

Date Acquired	8/1/2014 10:57	Sample Name	ICSA-140801
Data Batch	140801.b	Comment	ICSAICPMS_TW
Data File Name	044ICSA.d	Dilution	1

Mass	Name	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	0.069	3	17.3	1.2	0.8	
11	B	7.837	206	14.0	30	30	
51	V	-0.242	2432	3.3	10	10	
52	Cr	0.488	4595	4.2	8	5	
55	Mn	1.520	4510	1.9	8	10	
59	Co	0.629	4700	1.9	8	10	
60	Ni	0.451	1606	6.7	8	10	
63	Cu	0.846	5405	3.9	8	10	
66	Zn	1.867	2494	6.2	10	5	
75	As	0.501	568	7.6	4	5	
78	Se	0.605	60	6.2	2	5	
88	Sr	0.471	2431	4.3	10	10	
107	Ag	0.167	1940	4.7	0.8	2	
111	Cd	1.012	1928	2.5	1.2	1	~~FailAq~~ rounds down
118	Sn	0.603	2986	3.8	10	10	
121	Sb	0.736	4706	0.6	4	2.5	
137	Ba	0.343	837	7.2	8	10	
205	Tl	0.086	3138	6.5	4	1.5	
208	Pb	0.594	27272	1.7	1.2	1	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	845825	0.80	878942	96.23	70	120	
72	Ge	666864	0.88	708357	94.14	70	120	
115	In	7653459	1.00	8356167	91.59	70	120	
209	Bi	19125889	0.50	21610870	88.50	70	120	

Interference Check Solution AB (ICS-AB) Report

Date Acquired	8/1/2014 11:17	Sample Name	ICSAB-140801
Data Batch	140801.b	Comment	ICSBICPMS_TW
Data File Name	052ICSB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
51	V	45	39.144	158501	0.41	40	97.9	80	120	
52	Cr	45	20.183	99270	0.38	20	100.9	80	120	
55	Mn	45	20.635	60959	0.63	20	103.2	80	120	
59	Co	72	39.267	300845	0.47	40	98.2	80	120	
60	Ni	72	37.677	79702	0.62	40	94.2	80	120	
63	Cu	72	19.630	110764	0.51	20	98.1	80	120	
66	Zn	72	19.709	23369	1.52	20	98.5	80	120	
75	As	72	19.279	18179	0.40	20	96.4	80	120	
78	Se	72	19.956	1354	4.24	20	99.8	80	120	
107	Ag	115	19.143	222269	0.58	20	95.7	80	120	
111	Cd	115	10.691	21098	0.53	10	106.9	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	877076	0.22	878942	99.79	70	120	
72	Ge	696676	0.40	708357	98.35	70	120	
115	In	7955160	1.02	8356167	95.20	70	120	
209	Bi	19921354	0.91	21610870	92.18	70	120	

Initial Calibration Verification (ICV) Report

Date Acquired	8/1/2014 11:25	Sample Name	ICV-140801
Data Batch	140801.b	Comment	ICV ICPMS_TW
Data File Name	056_ICV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	96.025	3913	1.55	100	96.0	90	110	
11	B	45	91.296	1826	4.49	100	91.3	90	110	
23	Na	45	2740.640	1351595	0.16	2500	109.6	90	110	
24	Mg	45	2723.852	667115	1.15	2500	109.0	90	110	
27	Al	45	2468.276	276920	0.54	2500	98.7	90	110	
39	K	45	2676.976	778330	0.44	2500	107.1	90	110	
44	Ca	45	2571.318	47412	1.19	2500	102.9	90	110	
47	Ti	45	101.722	12219	0.80	100	101.7	90	110	
51	V	45	97.144	391330	0.61	100	97.1	90	110	
52	Cr	45	101.445	493142	1.02	100	101.4	90	110	
55	Mn	45	97.560	289782	0.97	100	97.6	90	110	
56	Fe	45	2479.681	10988496	0.67	2500	99.2	90	110	
59	Co	72	101.811	793888	0.57	100	101.8	90	110	
60	Ni	72	99.748	213582	0.74	100	99.7	90	110	
63	Cu	72	101.023	576451	1.07	100	101.0	90	110	
66	Zn	72	94.842	112810	0.77	100	94.8	90	110	
75	As	72	92.591	88392	0.39	100	92.6	90	110	
78	Se	72	96.103	6549	2.87	100	96.1	90	110	
88	Sr	115	94.220	468896	0.56	100	94.2	90	110	
95	Mo	115	92.970	369448	0.29	100	93.0	90	110	
107	Ag	115	97.926	1210628	0.74	100	97.9	90	110	
111	Cd	115	96.535	202811	0.95	100	96.5	90	110	
118	Sn	115	98.616	432548	0.25	100	98.6	90	110	
121	Sb	115	93.436	649262	0.58	100	93.4	90	110	
137	Ba	115	94.883	223217	1.43	100	94.9	90	110	
205	Tl	209	100.303	3308187	1.40	100	100.3	90	110	
208	Pb	209	100.038	4472945	0.81	100	100.0	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	884163	0.12	878942	100.59	70	120	
72	Ge	709205	0.72	708357	100.12	70	120	
115	In	8472065	0.60	8356167	101.39	70	120	
209	Bi	21884796	0.71	21610870	101.27	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/1/2014 11:29	Sample Name	LCVL-140801
Data Batch	140801.b	Comment	LCVLICPMS_TW
Data File Name	058LICV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.820	34	11.76	1	82.0	70	130	
11	B	45	20.589	460	12.55	20	102.9	70	130	
23	Na	45	109.319	73873	0.41	100	109.3	70	130	
24	Mg	45	104.282	26093	0.98	100	104.3	70	130	
27	Al	45	101.317	12382	1.56	100	101.3	70	130	
39	K	45	104.194	57091	0.84	100	104.2	70	130	
44	Ca	45	101.591	2175	6.82	100	101.6	70	130	
47	Ti	45	5.547	672	13.85	5	110.9	70	130	
51	V	45	0.963	7338	4.28	1	96.3	70	130	
52	Cr	45	5.642	29673	0.85	5	112.8	70	130	
55	Mn	45	5.331	15996	1.08	5	106.6	70	130	
56	Fe	45	101.573	467083	0.07	100	101.6	70	130	
59	Co	72	5.354	42149	0.34	5	107.1	70	130	
60	Ni	72	5.291	12122	2.20	5	105.8	70	130	
63	Cu	72	5.416	32014	0.76	5	108.3	70	130	
66	Zn	72	4.854	6236	4.71	5	97.1	70	130	
75	As	72	4.939	4871	0.69	5	98.8	70	130	
78	Se	72	5.167	376	3.13	5	103.3	70	130	
88	Sr	115	5.087	25807	1.16	5	101.7	70	130	
95	Mo	115	5.168	21862	1.73	5	103.4	70	130	
107	Ag	115	2.107	26287	0.15	2	105.3	70	130	
111	Cd	115	1.059	2247	4.12	1	105.9	70	130	
118	Sn	115	5.254	23821	0.79	5	105.1	70	130	
121	Sb	115	2.037	14334	1.29	2	101.8	70	130	
137	Ba	115	5.130	12257	3.14	5	102.6	70	130	
205	Tl	209	1.064	35862	0.75	1	106.4	70	130	
208	Pb	209	1.098	53740	1.06	1	109.8	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	882400	0.41	878942	100.39	70	120	
72	Ge	714426	0.31	708357	100.86	70	120	
115	In	8524565	0.57	8356167	102.02	70	120	
209	Bi	21881515	0.12	21610870	101.25	70	120	

Initial Calibration Blank (ICB) Report

Date Acquired	8/1/2014 11:33	Sample Name	ICB-140801
Data Batch	140801.b	Comment	ICB ICPMS_TW
Data File Name	060_ICB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.008	1	100.0	0.4	0.3	
11	B	45	-0.028	63	10.5	10	10	
23	Na	45	7.123	24468	0.6	50	100	
24	Mg	45	-0.864	419	4.0	50	100	
27	Al	45	-2.533	803	11.2	50	10	
39	K	45	1.709	28557	2.4	50	100	
44	Ca	45	-5.108	226	9.5	50	100	
47	Ti	45	-0.019	6	69.3	4	3	
51	V	45	-0.069	3240	3.3	4	3	
52	Cr	45	-0.020	2352	3.0	2	2	
55	Mn	45	-0.002	196	8.6	2	3	
56	Fe	45	-0.382	17031	1.2	50	50	
59	Co	72	0.002	107	30.8	2	3	
60	Ni	72	0.035	830	12.0	2	3	
63	Cu	72	-0.027	787	14.7	2	2	
66	Zn	72	-0.043	393	23.4	4	2	
75	As	72	-0.005	124	6.8	2	2	
78	Se	72	0.109	31	6.6	1	2	
88	Sr	115	-0.011	293	15.7	4	3	
95	Mo	115	0.087	1608	15.4	2	2	
107	Ag	115	0.005	148	28.2	0.4	1	
111	Cd	115	0.005	19	44.4	0.4	0.3	
118	Sn	115	0.016	734	11.6	4	3	
121	Sb	115	0.010	161	9.8	2	0.8	
137	Ba	115	-0.011	93	3.6	2	3	
205	Tl	209	0.011	1159	4.2	2	0.5	
208	Pb	209	0.022	5776	2.8	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	886564	0.04	878942	100.87	70	120	
72	Ge	719147	0.47	708357	101.52	70	120	
115	In	8470866	0.34	8356167	101.37	70	120	
209	Bi	22363803	0.79	21610870	103.48	70	120	

Method Blank Report

Date Acquired	8/1/14 12:10 PM	Sample Name	MB-64943
Data Batch	140801.b	Comment	MBLK6020A_W
Data File Name	061_LRB.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	-0.016	0	#DIV/0!		
11	B	45	-0.004	60	22.22		
23	Na	45	5.072	22068	0.70		
24	Mg	45	0.217	643	8.85		
27	Al	45	-0.159	1006	5.67		
39	K	45	-2.655	25699	0.79		
44	Ca	45	4.937	386	13.46		
47	Ti	45	0.013	9	86.60		
51	V	45	0.070	3572	4.18		
52	Cr	45	0.016	2377	4.67		
55	Mn	45	-0.007	172	32.06		
56	Fe	45	0.369	19146	0.68		
59	Co	72	0.004	117	23.39		
60	Ni	72	0.010	729	15.69		
63	Cu	72	0.012	949	13.42		
66	Zn	72	0.820	1343	6.42		
75	As	72	0.030	148	17.56		
78	Se	72	0.027	24	29.15		
88	Sr	115	0.029	473	9.21		
95	Mo	115	-0.156	623	5.16		
107	Ag	115	0.003	113	7.78		
111	Cd	115	0.013	33	36.05		
118	Sn	115	-0.032	507	9.82		
121	Sb	115	-0.002	79	24.75		
137	Ba	115	-0.004	107	23.59		
205	Tl	209	0.001	808	13.40		
208	Pb	209	-0.018	3894	4.79		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	833638	0.04	878942	94.85	70	120	
72	Ge	675211	0.17	708357	95.32	70	120	
115	In	8174848	1.09	8356167	97.83	70	120	
209	Bi	22028017	0.58	21610870	101.93	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	8/1/2014 12:12	Sample Name	LCS-64943
Data Batch	140801.b	Comment	LCS 6020A_W
Data File Name	062_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	206.993	7838	2.48	200	207.0	80	120	
11	B	45	194.592	3549	1.63	200	194.6	80	120	
23	Na	45	5042.073	2294535	1.93	5000	5042.1	80	120	
24	Mg	45	5015.681	1141136	0.45	5000	5015.7	80	120	
27	Al	45	4878.684	507690	0.68	5000	4878.7	80	120	
39	K	45	5001.052	1328712	2.27	5000	5001.1	80	120	
44	Ca	45	4801.184	82015	1.41	5000	4801.2	80	120	
47	Ti	45	205.167	22896	0.22	200	205.2	80	120	
51	V	45	204.464	761851	0.49	200	204.5	80	120	
52	Cr	45	207.820	936490	0.24	200	207.8	80	120	
55	Mn	45	203.181	560656	0.37	200	203.2	80	120	
56	Fe	45	5052.433	20789226	0.85	5000	5052.4	80	120	
59	Co	72	211.573	1552147	1.24	200	211.6	80	120	
60	Ni	72	205.561	413387	0.53	200	205.6	80	120	
63	Cu	72	208.821	1120165	0.45	200	208.8	80	120	
66	Zn	72	198.214	221376	0.33	200	198.2	80	120	
75	As	72	192.381	172678	0.53	200	192.4	80	120	
78	Se	72	199.161	12745	0.06	200	199.2	80	120	
88	Sr	115	191.571	902735	0.24	200	191.6	80	120	
95	Mo	115	199.932	751196	0.20	200	199.9	80	120	
107	Ag	115	206.527	2418486	1.04	200	206.5	80	120	
111	Cd	115	200.187	398377	0.30	200	200.2	80	120	
118	Sn	115	203.692	845601	0.64	200	203.7	80	120	
121	Sb	115	194.170	1277944	0.57	200	194.2	80	120	
137	Ba	115	199.461	444374	0.17	200	199.5	80	120	
205	Tl	209	203.182	6693293	0.56	200	203.2	80	120	
208	Pb	209	203.405	9081101	0.15	200	203.4	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	821684	0.07	878942	93.49	70	120	
72	Ge	667300	0.74	708357	94.20	70	120	
115	In	8024799	0.40	8356167	96.03	70	120	
209	Bi	21862991	0.71	21610870	101.17	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	8/1/2014 12:14	Sample Name	LCSD-64943
Data Batch	140801.b	Comment	LCSD6020A_W
Data File Name	063_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	201.490	7665	0.33	200	201.5	80	120	
11	B	45	194.291	3560	0.77	200	194.3	80	120	
23	Na	45	4989.814	2281534	0.91	5000	4989.8	80	120	
24	Mg	45	4959.397	1133575	0.42	5000	4959.4	80	120	
27	Al	45	4796.736	501500	0.56	5000	4796.7	80	120	
39	K	45	4779.673	1276950	0.35	5000	4779.7	80	120	
44	Ca	45	4720.499	81016	0.60	5000	4720.5	80	120	
47	Ti	45	199.019	22314	1.46	200	199.0	80	120	
51	V	45	197.588	739768	0.71	200	197.6	80	120	
52	Cr	45	203.115	919592	0.05	200	203.1	80	120	
55	Mn	45	198.616	550619	0.54	200	198.6	80	120	
56	Fe	45	5001.147	20674383	0.76	5000	5001.1	80	120	
59	Co	72	210.225	1548107	1.83	200	210.2	80	120	
60	Ni	72	200.529	404788	0.51	200	200.5	80	120	
63	Cu	72	203.360	1094990	0.18	200	203.4	80	120	
66	Zn	72	192.338	215629	0.45	200	192.3	80	120	
75	As	72	184.120	165884	0.21	200	184.1	80	120	
78	Se	72	194.391	12487	0.81	200	194.4	80	120	
88	Sr	115	185.604	883654	0.21	200	185.6	80	120	
95	Mo	115	194.216	737284	0.36	200	194.2	80	120	
107	Ag	115	203.743	2410364	1.10	200	203.7	80	120	
111	Cd	115	194.201	390461	0.17	200	194.2	80	120	
118	Sn	115	198.137	831061	0.17	200	198.1	80	120	
121	Sb	115	189.824	1262231	0.37	200	189.8	80	120	
137	Ba	115	193.321	435145	0.15	200	193.3	80	120	
205	Tl	209	199.081	6530227	0.79	200	199.1	80	120	
208	Pb	209	201.796	8970617	0.46	200	201.8	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	825509	0.43	878942	93.92	70	120	
72	Ge	669774	0.39	708357	94.55	70	120	
115	In	8107734	0.55	8356167	97.03	70	120	
209	Bi	21768609	0.51	21610870	100.73	70	120	

Dilution Sample (Dil) Report

Date Acquired	8/1/2014 12:19	Sample Name	1407285-01A SD
Data Batch	140801.b	Comment	SD 6020A_W
Data File Name	066_SD.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
9	Be	45	0.009	1	173.21	0.0	3003.8	110	90	
11	B	45	90.632	1719	1.94	424.9	106.7	110	90	Good
23	Na	45	25530.952	11773739	0.93	125666.7	101.6	110	90	Good
24	Mg	45	4295.916	997296	0.34	20621.9	104.2	110	90	Good
27	Al	45	22.910	3456	2.81	102.5	111.8	110	90	
39	K	45	621.483	191727	1.10	3079.8	100.9	110	90	Good
44	Ca	45	24276.158	421873	0.31	125410.9	96.8	110	90	Good
47	Ti	45	0.198	30	22.23	1.0	98.2	110	90	Good
51	V	45	2.361	12262	2.83	11.6	102.0	110	90	Good
52	Cr	45	0.066	2619	2.32	0.3	118.3	110	90	
55	Mn	45	1.370	4047	2.80	6.8	100.4	110	90	Good
56	Fe	45	13.372	73800	0.45	68.6	97.5	110	90	Good
59	Co	72	0.050	464	6.02	0.2	102.5	110	90	Good
60	Ni	72	0.425	1601	4.37	1.9	113.5	110	90	
63	Cu	72	0.078	1328	3.86	0.4	90.2	110	90	Good
66	Zn	72	0.511	1012	2.80	2.9	88.3	110	90	
75	As	72	0.436	526	5.12	2.1	102.9	110	90	Good
78	Se	72	0.254	39	12.45	1.1	113.5	110	90	
88	Sr	115	185.116	891240	0.33	959.8	96.4	110	90	Good
95	Mo	115	-0.034	1091	10.85	0.4	-41.4	110	90	
107	Ag	115	0.010	206	2.48	0.0	280.0	110	90	
111	Cd	115	0.008	24	41.66	0.0	134.9	110	90	
118	Sn	115	0.016	710	4.17	0.1	96.5	110	90	Good
121	Sb	115	0.034	320	7.29	0.1	124.1	110	90	
137	Ba	115	12.902	29476	1.27	65.0	99.3	110	90	Good
205	Tl	209	0.014	1230	7.92	0.0	151.1	110	90	
208	Pb	209	0.051	6905	4.34	0.2	110.0	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	838364	0.56	878942	95.38	70	120	
72	Ge	687441	0.43	708357	97.05	70	120	
115	In	8199041	0.96	8356167	98.12	70	120	
209	Bi	21670995	0.29	21610870	100.28	70	120	

Sample Report

Date Acquired	8/1/14 12:33 PM	Sample Name	1407278-14A
Data Batch	140801.b	Comment	SAMP6020A_W
Data File Name	073_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.001	1	86.60	2000	
11	B	45	6.387	177	15.44	2000	
23	Na	45	47.497	41592	10.75	25000	
24	Mg	45	7.694	2375	22.61	25000	
27	Al	45	1.545	1188	3.00	10000	
39	K	45	-3.356	25573	2.94	25000	
44	Ca	45	58.239	1310	25.34	10000	
47	Ti	45	0.033	11	34.61	2000	
51	V	45	0.062	3550	1.63	2000	
52	Cr	45	-0.019	2219	6.51	2000	
55	Mn	45	0.008	212	34.92	2000	
56	Fe	45	0.353	19121	0.31	10000	
59	Co	72	0.001	98	33.11	2000	
60	Ni	72	-0.004	700	9.72	2000	
63	Cu	72	0.132	1598	3.85	2000	
66	Zn	72	6.173	7374	3.64	2000	>RL
75	As	72	-0.001	121	2.82	2000	
78	Se	72	0.077	27	32.98	2000	
88	Sr	115	0.327	1916	21.83	2000	
95	Mo	115	-0.237	316	16.51	2000	
107	Ag	115	0.004	134	3.79	500	
111	Cd	115	0.007	22	34.66	2000	
118	Sn	115	-0.057	402	1.73	2000	
121	Sb	115	0.006	131	10.28	500	
137	Ba	115	0.043	213	16.46	2000	
205	Tl	209	0.002	848	10.29	2000	
208	Pb	209	0.025	5857	1.80	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	835517	0.64	878942	95.06	70	120	
72	Ge	674667	0.76	708357	95.24	70	120	
115	In	8223213	0.54	8356167	98.41	70	120	
209	Bi	22006252	1.71	21610870	101.83	70	120	

Sample Report

Date Acquired	8/1/14 12:35 PM	Sample Name	1407278-15A
Data Batch	140801.b	Comment	SAMP6020A_W
Data File Name	074_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	-0.016	0	#DIV/0!	2000	
11	B	45	329.117	5725	2.78	2000	>RL
23	Na	45	71449.600	30980275	0.67	25000	OUTCAL
24	Mg	45	10386.712	2268907	1.59	25000	>RL
27	Al	45	34.687	4427	0.91	10000	>RL
39	K	45	5391.704	1373740	1.26	25000	>RL
44	Ca	45	173712.755	2839749	0.50	10000	OUTCAL
47	Ti	45	0.339	43	35.25	2000	
51	V	45	2.863	13333	1.55	2000	
52	Cr	45	0.217	3118	2.51	2000	
55	Mn	45	4.598	12363	2.15	2000	J
56	Fe	45	28.449	128992	0.52	10000	
59	Co	72	0.202	1512	9.92	2000	
60	Ni	72	1.166	2925	3.49	2000	
63	Cu	72	0.395	2877	2.51	2000	
66	Zn	72	6.809	7697	1.66	2000	>RL
75	As	72	2.544	2309	2.37	2000	J
78	Se	72	70.295	4340	2.71	2000	>RL
88	Sr	115	778.833	3556875	0.52	2000	>RL
95	Mo	115	2.427	9985	2.16	2000	J
107	Ag	115	0.014	230	2.51	500	
111	Cd	115	0.052	108	15.87	2000	
118	Sn	115	0.058	842	2.57	2000	
121	Sb	115	0.798	5175	2.67	500	
137	Ba	115	33.608	72676	0.47	2000	>RL
205	Tl	209	0.033	1719	5.16	2000	
208	Pb	209	0.240	14196	2.00	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	789114	0.34	878942	89.78	70	120	
72	Ge	641729	0.15	708357	90.59	70	120	
115	In	7781332	1.86	8356167	93.12	70	120	
209	Bi	20162817	0.72	21610870	93.30	70	120	

Sample Report

Date Acquired	8/1/14 12:37 PM	Sample Name	1407278-16A
Data Batch	140801.b	Comment	SAMP6020A_W
Data File Name	075_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.019	1	173.21	2000	
11	B	45	1004.856	17847	1.26	2000	>RL
23	Na	45	100758.224	44894174	0.08	25000	OUTCAL
24	Mg	45	21656.044	4861294	0.53	25000	>RL
27	Al	45	306.701	32435	0.46	10000	>RL
39	K	45	4002.073	1054660	0.61	25000	>RL
44	Ca	45	200436.978	3367616	1.02	10000	OUTCAL
47	Ti	45	6.838	760	15.87	2000	J
51	V	45	7.983	32454	0.16	2000	J
52	Cr	45	1.502	8904	2.66	2000	
55	Mn	45	480.391	1308150	1.45	2000	>RL
56	Fe	45	1974.819	8031066	0.89	10000	>RL
59	Co	72	4.960	35853	1.35	2000	J
60	Ni	72	7.301	15097	1.96	2000	J
63	Cu	72	5.657	30669	0.99	2000	J
66	Zn	72	96.851	106550	1.79	2000	>RL
75	As	72	5.814	5245	1.18	2000	>RL
78	Se	72	0.360	44	31.05	2000	
88	Sr	115	2523.525	11645245	0.14	2000	OUTCAL
95	Mo	115	0.182	1840	3.30	2000	
107	Ag	115	0.025	359	18.70	500	
111	Cd	115	0.200	397	6.56	2000	
118	Sn	115	13.636	56028	0.83	2000	>RL
121	Sb	115	1.678	10909	1.19	500	J
137	Ba	115	54.348	118691	0.12	2000	>RL
205	Tl	209	0.012	1068	7.66	2000	
208	Pb	209	8.995	374833	0.30	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	811044	0.24	878942	92.28	70	120	
72	Ge	655981	0.87	708357	92.61	70	120	
115	In	7862141	1.44	8356167	94.09	70	120	
209	Bi	20181987	0.28	21610870	93.39	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	8/1/2014 12:39	Sample Name	1407285-01A PDS
Data Batch	140801.b	Comment	PDS 6020A_W
Data File Name	076_PDS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	197.025	7161	0.43	0.0	200	98.5	75	125	
11	B	45	608.541	10533	1.14	424.9	200	91.8	75	125	
23	Na	45	########	52833073	0.66	125666.7	5000	-74.5	75	125	Fail
24	Mg	45	24558.404	5360911	0.95	20621.9	5000	78.7	75	125	
27	Al	45	5067.456	506132	0.17	102.5	5000	99.3	75	125	
39	K	45	8526.236	2156798	1.03	3079.8	5000	108.9	75	125	
44	Ca	45	########	2030616	1.47	125410.9	5000	-22.7	75	125	Fail
47	Ti	45	199.858	21408	1.82	1.0	200	99.4	75	125	
51	V	45	209.157	747987	0.12	11.6	200	98.8	75	125	
52	Cr	45	201.594	872039	0.17	0.3	200	100.7	75	125	
55	Mn	45	200.519	531107	0.38	6.8	200	96.8	75	125	
56	Fe	45	5034.055	19882508	0.44	68.6	5000	99.3	75	125	
59	Co	72	198.489	1402654	2.09	0.2	200	99.1	75	125	
60	Ni	72	188.585	365347	0.35	1.9	200	93.4	75	125	
63	Cu	72	188.851	975855	0.23	0.4	200	94.2	75	125	
66	Zn	72	186.508	200655	0.49	2.9	200	91.8	75	125	
75	As	72	189.008	163406	0.15	2.1	200	93.4	75	125	
78	Se	72	193.431	11924	0.91	1.1	200	96.2	75	125	
88	Sr	115	1095.820	4912516	0.66	959.8	200	68.0	75	125	Fail
95	Mo	115	187.194	669367	0.28	0.4	200	93.4	75	125	
107	Ag	115	108.316	1207033	1.36	0.0	200	54.1	75	125	Fail
111	Cd	115	191.498	362637	0.18	0.0	200	95.7	75	125	
118	Sn	115	202.864	801389	0.44	0.1	200	101.4	75	125	
121	Sb	115	174.938	1095645	1.03	0.1	200	87.4	75	125	
137	Ba	115	252.306	534878	0.46	65.0	200	93.7	75	125	
205	Tl	209	200.094	5962099	1.05	0.0	200	100.0	75	125	
208	Pb	209	206.269	8329248	0.13	0.2	200	103.0	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	788708	0.20	878942	89.73	70	120	
72	Ge	642723	0.52	708357	90.73	70	120	
115	In	7636570	0.80	8356167	91.39	70	120	
209	Bi	19775321	1.05	21610870	91.51	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	8/1/2014 12:40	Sample Name	1407285-01A MS
Data Batch	140801.b	Comment	MS 6020A_W
Data File Name	077_MSW.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	199.632	7191	2.59	0.0	200	99.8	80	120	
11	B	45	591.166	10142	3.72	424.9	200	83.1	80	120	
23	Na	45	########	53146262	0.34	125666.7	5000	-37.9	80	120	Fail
24	Mg	45	24354.354	5268906	0.80	20621.9	5000	74.6	80	120	Fail
27	Al	45	4779.336	473146	0.32	102.5	5000	93.5	80	120	
39	K	45	8013.493	2010498	0.67	3079.8	5000	98.7	80	120	
44	Ca	45	########	2045904	0.25	125410.9	5000	18.6	80	120	Fail
47	Ti	45	201.464	21388	1.32	1.0	200	100.2	80	120	
51	V	45	214.026	758492	0.33	11.6	200	101.2	80	120	
52	Cr	45	202.253	867086	0.78	0.3	200	101.0	80	120	
55	Mn	45	203.285	533619	0.24	6.8	200	98.2	80	120	
56	Fe	45	4955.906	19399555	0.96	68.6	5000	97.7	80	120	
59	Co	72	193.904	1356386	0.44	0.2	200	96.8	80	120	
60	Ni	72	191.948	368088	0.59	1.9	200	95.0	80	120	
63	Cu	72	193.240	988409	0.10	0.4	200	96.4	80	120	
66	Zn	72	192.057	204528	0.63	2.9	200	94.6	80	120	
75	As	72	193.160	165304	0.68	2.1	200	95.5	80	120	
78	Se	72	195.398	11923	0.09	1.1	200	97.1	80	120	
88	Sr	115	1114.337	4946007	0.70	959.8	200	77.3	80	120	Fail
95	Mo	115	199.471	706133	0.15	0.4	200	99.5	80	120	
107	Ag	115	195.197	2153530	1.60	0.0	200	97.6	80	120	
111	Cd	115	192.280	360531	0.65	0.0	200	96.1	80	120	
118	Sn	115	203.303	795212	0.48	0.1	200	101.6	80	120	
121	Sb	115	194.824	1208129	0.31	0.1	200	97.3	80	120	
137	Ba	115	258.268	542095	0.22	65.0	200	96.7	80	120	
205	Tl	209	204.227	6008868	0.16	0.0	200	102.1	80	120	
208	Pb	209	206.147	8219978	0.30	0.2	200	103.0	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	781667	0.38	878942	88.93	70	120	
72	Ge	636220	0.48	708357	89.82	70	120	
115	In	7560881	0.47	8356167	90.48	70	120	
209	Bi	19527628	1.08	21610870	90.36	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	8/1/2014 12:42	Sample Name	1407285-01A MSD
Data Batch	140801.b	Comment	MSD 6020A_W
Data File Name	078_MSW.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	192.304	6906	0.73	0.0	200	96.2	80	120	
11	B	45	586.092	10026	0.23	424.9	200	80.6	80	120	
23	Na	45	########	52921327	0.70	125666.7	5000	-41.0	80	120	Fail
24	Mg	45	24226.999	5225906	1.48	20621.9	5000	72.1	80	120	Fail
27	Al	45	4769.558	470783	0.72	102.5	5000	93.3	80	120	
39	K	45	7791.928	1949775	0.52	3079.8	5000	94.2	80	120	
44	Ca	45	########	2046482	2.73	125410.9	5000	26.8	80	120	Fail
47	Ti	45	199.576	21125	1.05	1.0	200	99.3	80	120	
51	V	45	210.688	744501	0.64	11.6	200	99.6	80	120	
52	Cr	45	199.154	851290	0.13	0.3	200	99.4	80	120	
55	Mn	45	200.084	523668	0.30	6.8	200	96.6	80	120	
56	Fe	45	4917.462	19191910	0.48	68.6	5000	97.0	80	120	
59	Co	72	191.055	1327418	0.57	0.2	200	95.4	80	120	
60	Ni	72	190.432	362716	0.81	1.9	200	94.3	80	120	
63	Cu	72	189.855	964546	0.65	0.4	200	94.7	80	120	
66	Zn	72	188.706	199606	0.43	2.9	200	92.9	80	120	
75	As	72	192.840	163911	0.52	2.1	200	95.4	80	120	
78	Se	72	195.829	11868	1.52	1.1	200	97.4	80	120	
88	Sr	115	1126.395	4961326	1.31	959.8	200	83.3	80	120	
95	Mo	115	197.533	693919	0.48	0.4	200	98.6	80	120	
107	Ag	115	194.701	2131380	1.20	0.0	200	97.3	80	120	
111	Cd	115	190.179	353841	0.10	0.0	200	95.1	80	120	
118	Sn	115	201.789	783226	0.31	0.1	200	100.9	80	120	
121	Sb	115	194.042	1194013	0.12	0.1	200	97.0	80	120	
137	Ba	115	254.450	529985	0.42	65.0	200	94.7	80	120	
205	Tl	209	199.576	5851811	0.64	0.0	200	99.8	80	120	
208	Pb	209	202.647	8052755	0.74	0.2	200	101.2	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	779349	0.15	878942	88.67	70	120	
72	Ge	631908	0.32	708357	89.21	70	120	
115	In	7503300	1.24	8356167	89.79	70	120	
209	Bi	19459832	0.86	21610870	90.05	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/1/2014 12:44	Sample Name	CCV1-140801
Data Batch	140801.b	Comment	CCV ICPMS_TW
Data File Name	079_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	208.568	7558	1.93	200	104.3	90	110	
11	B	45	216.747	3777	1.02	200	108.4	90	110	
23	Na	45	5162.043	2247785	1.44	5000	103.2	90	110	
24	Mg	45	5058.061	1101339	0.13	5000	101.2	90	110	
27	Al	45	4969.791	494936	0.17	5000	99.4	90	110	
39	K	45	4984.037	1267404	0.69	5000	99.7	90	110	
44	Ca	45	4940.827	80766	0.83	5000	98.8	90	110	
47	Ti	45	213.734	22827	0.95	200	106.9	90	110	
51	V	45	210.641	751058	0.40	200	105.3	90	110	
52	Cr	45	214.917	926795	0.05	200	107.5	90	110	
55	Mn	45	210.443	555747	0.27	200	105.2	90	110	
56	Fe	45	5050.229	19887499	0.68	5000	101.0	90	110	
59	Co	72	215.687	1517241	0.43	200	107.8	90	110	
60	Ni	72	208.302	401640	0.30	200	104.2	90	110	
63	Cu	72	212.942	1095250	0.40	200	106.5	90	110	
66	Zn	72	206.262	220862	0.19	200	103.1	90	110	
75	As	72	201.650	173537	0.49	200	100.8	90	110	
78	Se	72	206.933	12697	0.32	200	103.5	90	110	
88	Sr	115	203.292	921639	0.32	200	101.6	90	110	
95	Mo	115	205.528	742933	0.21	200	102.8	90	110	
107	Ag	115	214.204	2413216	0.76	200	107.1	90	110	
111	Cd	115	205.478	393423	0.27	200	102.7	90	110	
118	Sn	115	211.756	845807	0.94	200	105.9	90	110	
121	Sb	115	201.991	1279071	0.26	200	101.0	90	110	
137	Ba	115	206.264	442112	0.40	200	103.1	90	110	
205	Tl	209	212.328	6565547	1.02	200	106.2	90	110	
208	Pb	209	214.963	9007341	0.34	200	107.5	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	786387	0.11	878942	89.47	70	120	
72	Ge	639802	0.25	708357	90.32	70	120	
115	In	7721189	1.00	8356167	92.40	70	120	
209	Bi	20521641	1.11	21610870	94.96	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/1/2014 12:54	Sample Name	LCVL1-140801
Data Batch	140801.b	Comment	LCVLICPMS_TW
Data File Name	081LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	1.012	37	15.23	1	101.2	70	130	
11	B	45	19.451	391	12.42	20	97.3	70	130	
23	Na	45	120.908	70942	0.48	100	120.9	70	130	
24	Mg	45	100.999	22572	1.02	100	101.0	70	130	
27	Al	45	98.391	10759	2.52	100	98.4	70	130	
39	K	45	105.048	51167	0.98	100	105.0	70	130	
44	Ca	45	109.449	2069	1.63	100	109.4	70	130	
47	Ti	45	5.547	600	5.09	5	110.9	70	130	
51	V	45	0.849	6143	1.13	1	84.9	70	130	
52	Cr	45	5.538	26036	0.11	5	110.8	70	130	
55	Mn	45	5.235	14022	2.43	5	104.7	70	130	
56	Fe	45	100.424	412336	0.46	100	100.4	70	130	
59	Co	72	5.228	37385	1.30	5	104.6	70	130	
60	Ni	72	5.243	10918	3.40	5	104.9	70	130	
63	Cu	72	5.393	28959	0.35	5	107.9	70	130	
66	Zn	72	5.051	5878	4.01	5	101.0	70	130	
75	As	72	4.923	4411	1.16	5	98.5	70	130	
78	Se	72	5.010	332	13.58	5	100.2	70	130	
88	Sr	115	5.003	22917	0.85	5	100.1	70	130	
95	Mo	115	4.663	17924	1.21	5	93.3	70	130	
107	Ag	115	2.131	24002	1.05	2	106.5	70	130	
111	Cd	115	1.084	2075	3.25	1	108.4	70	130	
118	Sn	115	5.296	21667	1.07	5	105.9	70	130	
121	Sb	115	2.140	13589	1.85	2	107.0	70	130	
137	Ba	115	5.192	11196	2.38	5	103.8	70	130	
205	Tl	209	1.067	34189	1.35	1	106.7	70	130	
208	Pb	209	1.069	49861	1.01	1	106.9	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	787529	0.35	878942	89.60	70	120	
72	Ge	648957	0.52	708357	91.61	70	120	
115	In	7695855	1.01	8356167	92.10	70	120	
209	Bi	20804844	0.50	21610870	96.27	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/1/2014 12:56	Sample Name	CCB1-140801
Data Batch	140801.b	Comment	CCB ICPMS_TW
Data File Name	082_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.020	1	86.6	0.4	0.3	
11	B	45	2.106	93	6.2	10	10	
23	Na	45	18.121	26599	0.8	50	100	
24	Mg	45	-1.495	236	9.6	50	100	
27	Al	45	-2.424	728	14.1	50	10	
39	K	45	3.414	25898	1.1	50	100	
44	Ca	45	-1.525	260	7.8	50	100	
47	Ti	45	-0.044	2	173.2	4	3	
51	V	45	-0.175	2512	5.0	4	3	
52	Cr	45	-0.015	2120	1.0	2	2	
55	Mn	45	0.004	191	25.7	2	3	
56	Fe	45	-0.889	13183	0.1	50	50	
59	Co	72	0.004	112	16.4	2	3	
60	Ni	72	0.029	739	7.7	2	3	
63	Cu	72	0.000	850	0.4	2	2	
66	Zn	72	-0.053	346	16.2	4	2	
75	As	72	-0.004	113	20.8	2	2	
78	Se	72	0.093	27	20.1	1	2	
88	Sr	115	0.002	327	5.4	4	3	
95	Mo	115	-0.191	463	12.6	2	2	
107	Ag	115	0.006	149	4.7	0.4	1	
111	Cd	115	0.007	21	50.8	0.4	0.3	
118	Sn	115	-0.039	451	2.1	4	3	
121	Sb	115	0.071	537	8.1	2	0.8	
137	Ba	115	-0.004	101	16.9	2	3	
205	Tl	209	0.014	1165	5.5	2	0.5	
208	Pb	209	0.011	4924	0.6	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	790841	1.06	878942	89.98	70	120	
72	Ge	650579	0.59	708357	91.84	70	120	
115	In	7754331	0.71	8356167	92.80	70	120	
209	Bi	20878292	0.63	21610870	96.61	70	120	

Sample Report

Date Acquired	8/1/14 1:04 PM	Sample Name	1407278-17A
Data Batch	140801.b	Comment	SAMP6020A_W
Data File Name	086_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.052	2	89.21	2000	
11	B	45	194.611	3209	8.57	2000	>RL
23	Na	45	35370.931	14444931	1.35	25000	OUTCAL
24	Mg	45	6567.959	1350719	2.41	25000	>RL
27	Al	45	65.808	7088	1.54	10000	>RL
39	K	45	4763.436	1145122	0.24	25000	>RL
44	Ca	45	152421.506	2345380	0.59	10000	OUTCAL
47	Ti	45	0.991	107	24.80	2000	
51	V	45	3.833	15803	3.18	2000	J
52	Cr	45	0.271	3151	2.70	2000	
55	Mn	45	8.535	21452	0.13	2000	J
56	Fe	45	82.701	323038	0.70	10000	J
59	Co	72	0.304	2113	12.42	2000	
60	Ni	72	0.621	1773	3.45	2000	
63	Cu	72	0.390	2699	3.21	2000	
66	Zn	72	5.089	5547	3.99	2000	>RL
75	As	72	2.296	1986	3.92	2000	J
78	Se	72	51.991	3046	0.97	2000	>RL
88	Sr	115	351.521	1540688	1.89	2000	>RL
95	Mo	115	4.259	15974	0.93	2000	J
107	Ag	115	0.028	383	12.08	500	
111	Cd	115	0.053	106	49.06	2000	
118	Sn	115	0.220	1432	8.76	2000	
121	Sb	115	3.569	21933	1.09	500	>RL
137	Ba	115	51.028	105824	0.73	2000	>RL
205	Tl	209	0.111	3994	15.88	2000	
208	Pb	209	0.356	18567	3.93	2000	J

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	742774	0.80	878942	84.51	70	120	
72	Ge	607976	0.67	708357	85.83	70	120	
115	In	7464699	0.59	8356167	89.33	70	120	
209	Bi	19713667	1.05	21610870	91.22	70	120	

Sample Report

Date Acquired	8/1/14 1:06 PM	Sample Name	1407278-18A
Data Batch	140801.b	Comment	SAMP6020A_W
Data File Name	087_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.003	1	173.21	2000	
11	B	45	772.281	12749	0.40	2000	>RL
23	Na	45	39057.650	16170325	1.40	25000	OUTCAL
24	Mg	45	9838.063	2050975	0.88	25000	>RL
27	Al	45	24.328	3239	3.47	10000	J
39	K	45	10483.559	2526727	1.27	25000	>RL
44	Ca	45	148083.920	2310355	1.03	10000	OUTCAL
47	Ti	45	0.500	58	38.42	2000	
51	V	45	0.322	4084	2.69	2000	
52	Cr	45	0.138	2650	5.23	2000	
55	Mn	45	13.414	34086	0.66	2000	>RL
56	Fe	45	142.156	551571	0.86	10000	>RL
59	Co	72	0.103	784	2.18	2000	
60	Ni	72	0.540	1658	1.29	2000	
63	Cu	72	0.442	3014	2.24	2000	
66	Zn	72	32.380	33932	1.99	2000	>RL
75	As	72	1.133	1056	3.28	2000	
78	Se	72	1.552	112	17.87	2000	
88	Sr	115	781.714	3462836	1.41	2000	>RL
95	Mo	115	0.373	2441	1.42	2000	
107	Ag	115	0.014	229	13.21	500	
111	Cd	115	0.104	201	13.50	2000	
118	Sn	115	0.173	1265	3.69	2000	
121	Sb	115	2.181	13583	3.51	500	J
137	Ba	115	91.023	190750	0.58	2000	>RL
205	Tl	209	0.033	1689	8.73	2000	
208	Pb	209	0.283	15829	1.39	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	753106	0.11	878942	85.68	70	120	
72	Ge	620156	0.49	708357	87.55	70	120	
115	In	7546609	0.83	8356167	90.31	70	120	
209	Bi	20002120	1.71	21610870	92.56	70	120	

Sample Report

Date Acquired	8/1/14 1:08 PM	Sample Name	1407278-19A
Data Batch	140801.b	Comment	SAMP6020A_W
Data File Name	088_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.041	2	86.60	2000	
11	B	45	204.862	3423	2.07	2000	>RL
23	Na	45	63372.992	26234860	2.08	25000	OUTCAL
24	Mg	45	14070.776	2934046	1.24	25000	>RL
27	Al	45	89.985	9492	1.89	10000	>RL
39	K	45	5570.294	1354301	2.61	25000	>RL
44	Ca	45	136463.089	2129723	1.16	10000	OUTCAL
47	Ti	45	4.686	487	35.93	2000	J
51	V	45	3.755	15761	0.42	2000	J
52	Cr	45	0.228	3021	2.18	2000	
55	Mn	45	11.972	30453	2.16	2000	>RL
56	Fe	45	283.612	1084948	0.50	10000	>RL
59	Co	72	0.397	2789	4.33	2000	
60	Ni	72	3.291	6798	3.60	2000	J
63	Cu	72	0.661	4108	4.66	2000	
66	Zn	72	8.127	8812	2.24	2000	>RL
75	As	72	1.707	1536	4.27	2000	
78	Se	72	12.553	766	4.96	2000	>RL
88	Sr	115	671.191	2927816	0.96	2000	>RL
95	Mo	115	0.524	2928	3.72	2000	
107	Ag	115	0.011	197	10.58	500	
111	Cd	115	0.063	122	15.74	2000	
118	Sn	115	0.046	760	6.19	2000	
121	Sb	115	1.509	9277	3.03	500	J
137	Ba	115	101.278	208975	0.86	2000	>RL
205	Tl	209	0.026	1441	1.39	2000	
208	Pb	209	1.101	48071	0.36	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	753359	0.76	878942	85.71	70	120	
72	Ge	620694	0.49	708357	87.62	70	120	
115	In	7430364	0.12	8356167	88.92	70	120	
209	Bi	19525512	1.10	21610870	90.35	70	120	

Sample Report

Date Acquired	8/1/14 1:10 PM	Sample Name	1407278-20A
Data Batch	140801.b	Comment	SAMP6020A_W
Data File Name	089_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.013	1	173.21	2000	
11	B	45	228.236	3714	6.61	2000	>RL
23	Na	45	66896.233	27004360	1.26	25000	OUTCAL
24	Mg	45	12934.359	2630222	1.40	25000	>RL
27	Al	45	546.449	51640	0.82	10000	>RL
39	K	45	6138.310	1452798	0.99	25000	>RL
44	Ca	45	150049.539	2283534	0.82	10000	OUTCAL
47	Ti	45	4.759	481	1.60	2000	J
51	V	45	16.899	58969	0.62	2000	>RL
52	Cr	45	1.030	6169	1.30	2000	
55	Mn	45	1492.459	3680691	0.67	2000	>RL
56	Fe	45	3309.671	12180385	0.82	10000	>RL
59	Co	72	6.967	46212	0.31	2000	J
60	Ni	72	6.086	11661	2.36	2000	J
63	Cu	72	3.564	18029	1.23	2000	J
66	Zn	72	24.373	24897	1.44	2000	>RL
75	As	72	48.424	39313	1.07	2000	>RL
78	Se	72	16.086	947	5.60	2000	>RL
88	Sr	115	553.084	2340929	0.52	2000	>RL
95	Mo	115	0.260	1950	5.57	2000	
107	Ag	115	0.041	507	7.59	500	
111	Cd	115	0.373	673	3.25	2000	J
118	Sn	115	0.039	710	4.90	2000	
121	Sb	115	67.344	398240	0.02	500	>RL
137	Ba	115	200.217	400721	0.26	2000	>RL
205	Tl	209	0.035	1698	9.82	2000	
208	Pb	209	4.786	191688	0.79	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	734632	0.70	878942	83.58	70	120	
72	Ge	602303	0.30	708357	85.03	70	120	
115	In	7209771	1.12	8356167	86.28	70	120	
209	Bi	19202099	0.64	21610870	88.85	70	120	

Sample Report

Date Acquired	8/1/14 1:12 PM	Sample Name	1407278-21A
Data Batch	140801.b	Comment	SAMP6020A_W
Data File Name	090_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.003	1	86.60	2000	
11	B	45	268.248	4432	5.39	2000	>RL
23	Na	45	113790.848	46742775	0.78	25000	OUTCAL
24	Mg	45	21899.287	4532416	1.76	25000	>RL
27	Al	45	42.789	4962	2.96	10000	>RL
39	K	45	5441.621	1313724	1.87	25000	>RL
44	Ca	45	179243.285	2776798	1.15	10000	OUTCAL
47	Ti	45	0.735	81	26.10	2000	
51	V	45	1.751	8878	1.81	2000	
52	Cr	45	0.126	2580	3.18	2000	
55	Mn	45	30.193	75972	1.38	2000	>RL
56	Fe	45	69.923	277417	0.41	10000	J
59	Co	72	2.885	19367	0.46	2000	
60	Ni	72	6.650	12803	0.82	2000	J
63	Cu	72	0.626	3850	8.03	2000	
66	Zn	72	5.106	5563	3.71	2000	>RL
75	As	72	2.342	2023	1.46	2000	J
78	Se	72	13.260	792	2.88	2000	>RL
88	Sr	115	1176.842	4975722	0.72	2000	>RL
95	Mo	115	0.657	3287	2.15	2000	
107	Ag	115	0.012	192	26.55	500	
111	Cd	115	0.035	69	43.37	2000	
118	Sn	115	-0.018	496	4.48	2000	
121	Sb	115	1.274	7604	0.62	500	J
137	Ba	115	40.882	81827	1.29	2000	>RL
205	Tl	209	0.061	2361	5.36	2000	
208	Pb	209	0.433	20515	0.72	2000	J

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	747804	0.68	878942	85.08	70	120	
72	Ge	608046	0.25	708357	85.84	70	120	
115	In	7202283	0.05	8356167	86.19	70	120	
209	Bi	18691158	1.19	21610870	86.49	70	120	

Sample Report

Date Acquired	8/1/14 1:13 PM	Sample Name	1407278-22A
Data Batch	140801.b	Comment	SAMP6020A_W
Data File Name	091_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.032	2	124.90	2000	
11	B	45	240.774	3936	5.46	2000	>RL
23	Na	45	63909.335	25948152	1.19	25000	OUTCAL
24	Mg	45	10379.437	2122750	0.14	25000	>RL
27	Al	45	313.083	30144	1.00	10000	>RL
39	K	45	4579.075	1095914	0.60	25000	>RL
44	Ca	45	233542.530	3574474	0.42	10000	OUTCAL
47	Ti	45	4.244	432	1.18	2000	J
51	V	45	5.901	22618	0.35	2000	J
52	Cr	45	0.521	4147	2.18	2000	
55	Mn	45	62.754	155820	1.01	2000	>RL
56	Fe	45	281.612	1056661	0.70	10000	>RL
59	Co	72	0.673	4561	1.83	2000	
60	Ni	72	1.094	2629	2.16	2000	
63	Cu	72	1.083	6060	3.42	2000	
66	Zn	72	7.890	8360	1.16	2000	>RL
75	As	72	2.244	1935	3.73	2000	J
78	Se	72	170.690	9919	1.46	2000	>RL
88	Sr	115	525.432	2224074	1.40	2000	>RL
95	Mo	115	16.442	56498	2.49	2000	>RL
107	Ag	115	0.017	248	18.17	500	
111	Cd	115	0.049	93	25.75	2000	
118	Sn	115	-0.020	489	9.26	2000	
121	Sb	115	51.615	305256	0.74	500	>RL
137	Ba	115	51.985	104114	0.36	2000	>RL
205	Tl	209	0.019	1179	5.97	2000	
208	Pb	209	4.979	193818	1.01	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	738860	0.92	878942	84.06	70	120	
72	Ge	605747	0.58	708357	85.51	70	120	
115	In	7210184	1.69	8356167	86.29	70	120	
209	Bi	18679533	1.43	21610870	86.44	70	120	

Sample Report

Date Acquired	8/1/14 1:15 PM	Sample Name	1407278-23A
Data Batch	140801.b	Comment	SAMP6020A_W
Data File Name	092_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.003	1	173.21	2000	
11	B	45	192.627	3284	3.97	2000	>RL
23	Na	45	43725.707	18449199	0.74	25000	OUTCAL
24	Mg	45	11089.262	2356178	0.81	25000	>RL
27	Al	45	82.568	8951	1.75	10000	>RL
39	K	45	4080.506	1017288	1.14	25000	>RL
44	Ca	45	169941.500	2702468	2.26	10000	OUTCAL
47	Ti	45	2.080	223	13.01	2000	
51	V	45	6.259	24740	0.99	2000	J
52	Cr	45	0.262	3217	7.26	2000	
55	Mn	45	17.311	44787	1.27	2000	>RL
56	Fe	45	128.227	508696	1.00	10000	>RL
59	Co	72	0.454	3243	4.89	2000	
60	Ni	72	1.550	3616	3.84	2000	
63	Cu	72	0.818	4987	1.45	2000	
66	Zn	72	6.544	7314	2.53	2000	>RL
75	As	72	104.254	88855	1.21	2000	>RL
78	Se	72	39.397	2409	0.93	2000	>RL
88	Sr	115	892.287	3902316	1.93	2000	>RL
95	Mo	115	23.007	81227	0.17	2000	>RL
107	Ag	115	0.006	140	30.40	500	
111	Cd	115	0.123	234	0.82	2000	
118	Sn	115	-0.013	532	13.61	2000	
121	Sb	115	40.496	247491	1.08	500	>RL
137	Ba	115	30.179	62503	0.62	2000	>RL
205	Tl	209	0.018	1216	6.36	2000	
208	Pb	209	0.540	25670	1.53	2000	J

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	767639	1.33	878942	87.34	70	120	
72	Ge	633248	1.34	708357	89.40	70	120	
115	In	7449655	0.75	8356167	89.15	70	120	
209	Bi	19508948	1.67	21610870	90.27	70	120	

Sample Report

Date Acquired	8/1/14 1:17 PM	Sample Name	1407278-24A
Data Batch	140801.b	Comment	SAMP6020A_W
Data File Name	093_WS.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	-0.016	0	#DIV/0!	2000	
11	B	45	490.094	7876	3.98	2000	>RL
23	Na	45	19070.226	7675111	0.35	25000	>RL
24	Mg	45	8644.263	1749824	0.42	25000	>RL
27	Al	45	33.531	3996	1.23	10000	>RL
39	K	45	12923.491	3019011	0.23	25000	>RL
44	Ca	45	143870.521	2179553	2.45	10000	OUTCAL
47	Ti	45	0.338	40	58.34	2000	
51	V	45	13.699	48134	2.01	2000	>RL
52	Cr	45	0.277	3128	3.72	2000	
55	Mn	45	4.377	10913	1.35	2000	J
56	Fe	45	101.850	388097	0.51	10000	>RL
59	Co	72	0.076	591	7.51	2000	
60	Ni	72	0.400	1376	11.64	2000	
63	Cu	72	0.463	3069	3.55	2000	
66	Zn	72	7.584	8118	1.34	2000	>RL
75	As	72	99.719	81992	0.80	2000	>RL
78	Se	72	20.790	1236	1.67	2000	>RL
88	Sr	115	408.649	1726866	1.69	2000	>RL
95	Mo	115	20.223	69123	1.57	2000	>RL
107	Ag	115	0.005	121	13.01	500	
111	Cd	115	0.020	43	35.25	2000	
118	Sn	115	0.012	608	10.30	2000	
121	Sb	115	239.813	1415724	2.49	500	>RL
137	Ba	115	65.431	130820	0.12	2000	>RL
205	Tl	209	0.028	1445	4.84	2000	
208	Pb	209	0.145	9622	2.51	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	731265	0.66	878942	83.20	70	120	
72	Ge	610871	0.27	708357	86.24	70	120	
115	In	7198136	0.70	8356167	86.14	70	120	
209	Bi	18825221	0.18	21610870	87.11	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/1/2014 13:30	Sample Name	CCV2-140801
Data Batch	140801.b	Comment	CCV ICPMS_TW
Data File Name	098_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	200.071	7560	1.27	200	100.0	90	110	
11	B	45	199.133	3624	8.19	200	99.6	90	110	
23	Na	45	5081.028	2307261	1.09	5000	101.6	90	110	
24	Mg	45	4989.790	1132852	0.91	5000	99.8	90	110	
27	Al	45	4988.052	517957	1.14	5000	99.8	90	110	
39	K	45	5263.110	1393977	0.62	5000	105.3	90	110	
44	Ca	45	4923.532	83916	0.59	5000	98.5	90	110	
47	Ti	45	212.724	23689	0.85	200	106.4	90	110	
51	V	45	208.218	774135	0.30	200	104.1	90	110	
52	Cr	45	211.696	951896	0.59	200	105.8	90	110	
55	Mn	45	210.187	578759	0.75	200	105.1	90	110	
56	Fe	45	5015.528	20593493	0.20	5000	100.3	90	110	
59	Co	72	210.453	1539637	0.77	200	105.2	90	110	
60	Ni	72	204.293	409682	0.71	200	102.1	90	110	
63	Cu	72	208.456	1115078	0.57	200	104.2	90	110	
66	Zn	72	204.779	228049	0.31	200	102.4	90	110	
75	As	72	202.873	181571	0.74	200	101.4	90	110	
78	Se	72	208.180	13284	0.80	200	104.1	90	110	
88	Sr	115	203.642	957691	0.82	200	101.8	90	110	
95	Mo	115	200.064	750198	1.50	200	100.0	90	110	
107	Ag	115	206.338	2411283	0.71	200	103.2	90	110	
111	Cd	115	200.853	398891	0.81	200	100.4	90	110	
118	Sn	115	209.382	867488	0.82	200	104.7	90	110	
121	Sb	115	202.726	1331606	0.85	200	101.4	90	110	
137	Ba	115	205.015	455848	0.67	200	102.5	90	110	
205	Tl	209	207.052	6493371	0.03	200	103.5	90	110	
208	Pb	209	210.521	8947323	0.49	200	105.3	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	819955	0.59	878942	93.29	70	120	
72	Ge	665393	0.27	708357	93.93	70	120	
115	In	8008997	0.81	8356167	95.85	70	120	
209	Bi	20812544	0.26	21610870	96.31	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/1/2014 14:01	Sample Name	LCVL2-140801
Data Batch	140801.b	Comment	LCVLICPMS_TW
Data File Name	112LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.856	33	18.70	1	85.6	70	130	
11	B	45	22.018	449	7.44	20	110.1	70	130	
23	Na	45	122.533	73897	1.00	100	122.5	70	130	
24	Mg	45	102.576	23637	1.54	100	102.6	70	130	
27	Al	45	102.443	11514	1.86	100	102.4	70	130	
39	K	45	106.657	53190	0.71	100	106.7	70	130	
44	Ca	45	108.349	2116	2.92	100	108.3	70	130	
47	Ti	45	4.882	546	11.70	5	97.6	70	130	
51	V	45	0.897	6512	0.50	1	89.7	70	130	
52	Cr	45	5.497	26674	1.41	5	109.9	70	130	
55	Mn	45	5.384	14867	1.18	5	107.7	70	130	
56	Fe	45	100.899	427236	0.80	100	100.9	70	130	
59	Co	72	5.332	39150	0.75	5	106.6	70	130	
60	Ni	72	5.223	11169	2.47	5	104.5	70	130	
63	Cu	72	5.347	29491	0.62	5	106.9	70	130	
66	Zn	72	4.993	5971	0.74	5	99.9	70	130	
75	As	72	4.951	4554	1.92	5	99.0	70	130	
78	Se	72	5.584	378	6.41	5	111.7	70	130	
88	Sr	115	5.258	24519	1.08	5	105.2	70	130	
95	Mo	115	4.596	18011	1.06	5	91.9	70	130	
107	Ag	115	2.129	24427	0.84	2	106.4	70	130	
111	Cd	115	1.082	2111	4.38	1	108.2	70	130	
118	Sn	115	5.344	22273	0.44	5	106.9	70	130	
121	Sb	115	2.111	13661	2.51	2	105.6	70	130	
137	Ba	115	5.213	11453	1.46	5	104.3	70	130	
205	Tl	209	1.036	33661	0.21	1	103.6	70	130	
208	Pb	209	1.013	48114	1.03	1	101.3	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	812291	0.16	878942	92.42	70	120	
72	Ge	666365	0.56	708357	94.07	70	120	
115	In	7839706	0.55	8356167	93.82	70	120	
209	Bi	21087762	1.45	21610870	97.58	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/1/2014 14:06	Sample Name	CCB2-140801
Data Batch	140801.b	Comment	CCB ICPMS_TW
Data File Name	114_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	-0.016	0	#DIV/0!	0.4	0.3	
11	B	45	0.188	61	26.9	10	10	
23	Na	45	22.926	29118	1.5	50	100	
24	Mg	45	-1.746	183	14.2	50	100	
27	Al	45	-2.034	778	11.9	50	10	
39	K	45	4.879	26661	1.7	50	100	
44	Ca	45	-2.959	240	20.6	50	100	
47	Ti	45	-0.065	0	#DIV/0!	4	3	
51	V	45	-0.149	2646	2.8	4	3	
52	Cr	45	-0.007	2186	1.6	2	2	
55	Mn	45	0.001	188	26.7	2	3	
56	Fe	45	-1.022	12846	1.6	50	50	
59	Co	72	0.003	107	18.7	2	3	
60	Ni	72	0.032	757	1.6	2	3	
63	Cu	72	-0.043	633	6.6	2	2	
66	Zn	72	-0.046	359	18.6	4	2	
75	As	72	-0.006	114	6.0	2	2	
78	Se	72	0.081	26	3.7	1	2	
88	Sr	115	0.004	344	18.1	4	3	
95	Mo	115	-0.281	140	27.5	2	2	
107	Ag	115	-0.001	68	10.2	0.4	1	
111	Cd	115	0.004	16	53.9	0.4	0.3	
118	Sn	115	-0.091	248	15.9	4	3	
121	Sb	115	0.025	250	21.2	2	0.8	
137	Ba	115	-0.008	93	34.4	2	3	
205	Tl	209	-0.006	548	7.9	2	0.5	
208	Pb	209	-0.041	2762	5.0	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	802648	0.23	878942	91.32	70	120	
72	Ge	661112	0.36	708357	93.33	70	120	
115	In	7876733	0.69	8356167	94.26	70	120	
209	Bi	21007996	0.16	21610870	97.21	70	120	

Method Blank Report

Date Acquired	8/1/14 2:08 PM	Sample Name	MB-64956
Data Batch	140801.b	Comment	MBLK6020A_S
Data File Name	115_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	-0.016	0	#DIV/0!		
11	B	45	-0.529	49	7.86		
23	Na	45	34.123	34280	0.86		
24	Mg	45	8.476	2470	2.35		
27	Al	45	0.353	1027	9.35		
39	K	45	9.121	27925	1.34		
44	Ca	45	53.188	1181	7.28		FAIL
47	Ti	45	0.127	21	18.21		
51	V	45	-0.067	2963	3.21		
52	Cr	45	0.056	2478	7.10		
55	Mn	45	0.245	849	4.55		
56	Fe	45	3.243	30175	0.76		
59	Co	72	0.005	120	14.70		
60	Ni	72	0.055	792	14.78		
63	Cu	72	0.031	1016	4.67		
66	Zn	72	3.741	4480	4.76		
75	As	72	-0.001	117	19.38		
78	Se	72	0.082	26	15.61		
88	Sr	115	0.088	728	4.85		
95	Mo	115	-0.260	214	11.24		
107	Ag	115	0.002	97	39.77		
111	Cd	115	0.007	21	45.58		
118	Sn	115	4.169	17529	1.23		J
121	Sb	115	0.041	353	7.72		
137	Ba	115	0.032	180	24.22		
205	Tl	209	-0.002	670	12.07		
208	Pb	209	0.029	5824	1.76		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	808011	0.31	878942	91.93	70	120	
72	Ge	652050	0.28	708357	92.05	70	120	
115	In	7849183	1.08	8356167	93.93	70	120	
209	Bi	21333379	0.90	21610870	98.72	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	8/1/2014 14:10	Sample Name	LCS-64956
Data Batch	140801.b	Comment	LCS 6020A_S
Data File Name	116_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	202.019	7357	2.70	200	202.0	80	120	
11	B	45	191.847	3366	5.63	200	191.8	80	120	
23	Na	45	1021.968	462150	0.13	1000	1022.0	80	120	
24	Mg	45	1027.388	225218	0.75	1000	1027.4	80	120	
27	Al	45	988.381	99680	0.27	1000	988.4	80	120	
39	K	45	1007.096	277287	0.24	1000	1007.1	80	120	
44	Ca	45	1498.058	24803	1.13	1000	1498.1	80	120	Fail
47	Ti	45	208.495	22375	1.54	200	208.5	80	120	
51	V	45	205.104	734901	0.15	200	205.1	80	120	
52	Cr	45	210.129	910551	0.56	200	210.1	80	120	
55	Mn	45	207.841	551504	0.22	200	207.8	80	120	
56	Fe	45	1045.572	4150507	1.14	1000	1045.6	80	120	
59	Co	72	213.153	1509900	1.54	200	213.2	80	120	
60	Ni	72	203.922	395957	0.56	200	203.9	80	120	
63	Cu	72	206.881	1071536	0.45	200	206.9	80	120	
66	Zn	72	203.282	219198	0.73	200	203.3	80	120	
75	As	72	198.839	172316	0.16	200	198.8	80	120	
78	Se	72	199.873	12350	0.82	200	199.9	80	120	
88	Sr	115	195.582	888196	0.32	200	195.6	80	120	
95	Mo	115	198.244	717853	0.23	200	198.2	80	120	
107	Ag	115	208.060	2348064	2.14	200	208.1	80	120	
111	Cd	115	199.354	382334	0.18	200	199.4	80	120	
118	Sn	115	210.824	843441	0.57	200	210.8	80	120	
121	Sb	115	198.053	1256244	0.20	200	198.1	80	120	
137	Ba	115	202.135	433998	0.25	200	202.1	80	120	
205	Tl	209	203.542	6368098	0.59	200	203.5	80	120	
208	Pb	209	208.804	8853333	0.62	200	208.8	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	790168	0.56	878942	89.90	70	120	
72	Ge	644272	0.07	708357	90.95	70	120	
115	In	7733947	0.70	8356167	92.55	70	120	
209	Bi	20763095	0.55	21610870	96.08	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	8/1/2014 14:12	Sample Name	LCSD-64956
Data Batch	140801.b	Comment	LCSD6020A_S
Data File Name	117_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	190.591	6902	1.53	200	190.6	80	120	
11	B	45	192.008	3350	3.18	200	192.0	80	120	
23	Na	45	981.010	441973	0.31	1000	981.0	80	120	
24	Mg	45	976.277	212887	0.14	1000	976.3	80	120	
27	Al	45	949.609	95290	0.78	1000	949.6	80	120	
39	K	45	963.448	264914	0.81	1000	963.4	80	120	
44	Ca	45	1411.434	23260	1.18	1000	1411.4	80	120	Fail
47	Ti	45	197.522	21082	0.49	200	197.5	80	120	
51	V	45	196.447	700206	0.29	200	196.4	80	120	
52	Cr	45	200.863	865764	0.22	200	200.9	80	120	
55	Mn	45	198.338	523446	0.19	200	198.3	80	120	
56	Fe	45	998.103	3941180	0.86	1000	998.1	80	120	
59	Co	72	202.293	1422948	0.51	200	202.3	80	120	
60	Ni	72	195.443	376863	0.56	200	195.4	80	120	
63	Cu	72	197.999	1018386	0.22	200	198.0	80	120	
66	Zn	72	194.160	207915	0.68	200	194.2	80	120	
75	As	72	191.430	164738	0.11	200	191.4	80	120	
78	Se	72	194.024	11905	1.15	200	194.0	80	120	
88	Sr	115	187.274	847617	0.17	200	187.3	80	120	
95	Mo	115	190.788	688595	0.56	200	190.8	80	120	
107	Ag	115	199.654	2245539	0.32	200	199.7	80	120	
111	Cd	115	190.046	363253	0.38	200	190.0	80	120	
118	Sn	115	201.536	803618	0.42	200	201.5	80	120	
121	Sb	115	189.410	1197321	0.11	200	189.4	80	120	
137	Ba	115	194.501	416179	0.38	200	194.5	80	120	
205	Tl	209	198.688	6178011	1.06	200	198.7	80	120	
208	Pb	209	200.325	8441943	0.55	200	200.3	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	785879	0.31	878942	89.41	70	120	
72	Ge	639762	0.14	708357	90.32	70	120	
115	In	7709219	1.86	8356167	92.26	70	120	
209	Bi	20637436	0.96	21610870	95.50	70	120	

Dilution Sample (Dil) Report

Date Acquired	8/1/2014 14:18	Sample Name	1407273-17C SD
Data Batch	140801.b	Comment	SD 6020A_S
Data File Name	120_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
9	Be	45	0.455	17	29.04	2.8	80.7	110	90	
11	B	45	19.415	396	13.73	84.0	115.6	110	90	
23	Na	45	905.171	415302	0.53	4335.1	104.4	110	90	Good
24	Mg	45	3715.068	820489	0.28	17312.5	107.3	110	90	Good
27	Al	45	23080.182	2327522	1.42	106444.1	108.4	110	90	Good
39	K	45	2166.250	572918	0.69	10778.3	100.5	110	90	Good
44	Ca	45	142612.287	2356190	2.77	670822.0	106.3	110	90	Good
47	Ti	45	100.678	10908	2.60	504.4	99.8	110	90	Good
51	V	45	38.518	141866	0.30	187.8	102.5	110	90	Good
52	Cr	45	27.801	123495	0.78	130.4	106.6	110	90	Good
55	Mn	45	63.579	170401	0.22	300.5	105.8	110	90	Good
56	Fe	45	11778.972	47018403	0.38	55426.5	106.3	110	90	Good
59	Co	72	2.419	17149	1.36	11.8	102.3	110	90	Good
60	Ni	72	8.033	16185	3.39	38.5	104.4	110	90	Good
63	Cu	72	3.244	17566	1.31	15.6	104.1	110	90	Good
66	Zn	72	37.192	40276	2.03	176.8	105.2	110	90	Good
75	As	72	2.944	2655	0.80	14.6	101.1	110	90	Good
78	Se	72	0.614	58	14.25	3.0	103.9	110	90	Good
88	Sr	115	211.017	953406	0.33	1101.7	95.8	110	90	Good
95	Mo	115	0.051	1332	7.98	1.2	21.5	110	90	
107	Ag	115	0.017	271	9.86	0.1	99.1	110	90	Good
111	Cd	115	0.118	232	17.72	0.5	110.9	110	90	
118	Sn	115	1.325	5873	2.39	6.9	95.8	110	90	Good
121	Sb	115	0.093	676	6.66	0.4	116.7	110	90	
137	Ba	115	59.102	126322	1.01	296.0	99.8	110	90	Good
205	Tl	209	0.210	7098	3.29	1.0	106.2	110	90	Good
208	Pb	209	6.553	274399	0.69	33.0	99.4	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	797505	0.40	878942	90.73	70	120	
72	Ge	641826	0.59	708357	90.61	70	120	
115	In	7694775	0.95	8356167	92.08	70	120	
209	Bi	20193536	0.88	21610870	93.44	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	8/1/2014 14:37	Sample Name	1407273-17C PDS ~~1403262-06A PDS~~
Data Batch	140801.b	Comment	PDS 6020A_S
Data File Name	130_PDS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	189.989	7387	1.74	2.8	200	93.6	75	125	
11	B	45	278.807	5195	0.30	84.0	200	97.4	75	125	
23	Na	45	9968.809	4638700	1.49	4335.1	5000	112.7	75	125	
24	Mg	45	23768.569	5550400	0.67	17312.5	5000	129.1	75	125	Fail
27	Al	45	########	12795542	0.73	106444.1	5000	270.7	75	125	Fail
39	K	45	17855.427	4802154	2.87	10778.3	5000	141.5	75	125	Fail
44	Ca	45	########	13020741	0.28	670822.0	5000	1484.0	75	125	Fail
47	Ti	45	776.475	88956	1.34	504.4	200	136.0	75	125	Fail
51	V	45	431.502	1647117	1.72	187.8	200	121.8	75	125	
52	Cr	45	361.454	1670763	1.13	130.4	200	115.5	75	125	
55	Mn	45	552.407	1564852	1.48	300.5	200	126.0	75	125	Fail
56	Fe	45	66466.548	280605696	0.70	55426.5	5000	220.8	75	125	Fail
59	Co	72	231.446	1661478	0.51	11.8	200	109.8	75	125	
60	Ni	72	242.670	477430	0.90	38.5	200	102.1	75	125	
63	Cu	72	217.721	1142832	0.64	15.6	200	101.1	75	125	
66	Zn	72	390.509	426394	0.71	176.8	200	106.9	75	125	
75	As	72	231.785	203552	0.35	14.6	200	108.6	75	125	
78	Se	72	216.912	13580	1.09	3.0	200	107.0	75	125	
88	Sr	115	1431.700	6425952	0.99	1101.7	200	165.0	75	125	Fail
95	Mo	115	210.310	752813	0.40	1.2	200	104.6	75	125	
107	Ag	115	278.900	3111609	2.99	0.1	200	139.4	75	125	Fail
111	Cd	115	205.960	390522	0.77	0.5	200	102.7	75	125	
118	Sn	115	227.771	900852	0.24	6.9	200	110.4	75	125	
121	Sb	115	211.983	1329300	0.35	0.4	200	105.8	75	125	
137	Ba	115	535.448	1136427	0.59	296.0	200	119.7	75	125	
205	Tl	209	218.933	6197748	0.44	1.0	200	109.0	75	125	
208	Pb	209	258.401	9912845	0.21	33.0	200	112.7	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	843707	0.34	878942	95.99	70	120	
72	Ge	652985	1.11	708357	92.18	70	120	
115	In	7646056	0.62	8356167	91.50	70	120	
209	Bi	18788546	0.91	21610870	86.94	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	8/1/2014 14:39	Sample Name	1407273-17C MS ~~1403262-06A MS~~
Data Batch	140801.b	Comment	MS 6020A_S
Data File Name	131_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	170.682	6555	0.30	2.8	200	83.9	80	120	
11	B	45	238.694	4403	3.83	84.0	200	77.4	80	120	Fail
23	Na	45	5377.943	2481026	0.27	4335.1	1000	104.3	80	120	
24	Mg	45	19013.646	4386234	1.21	17312.5	1000	170.1	80	120	Fail
27	Al	45	########	12118222	0.55	106444.1	1000	858.9	80	120	Fail
39	K	45	12218.865	3254616	1.13	10778.3	1000	144.1	80	120	Fail
44	Ca	45	########	10954469	0.90	670822.0	1000	#####	80	120	Fail
47	Ti	45	591.939	66990	0.88	504.4	200	43.8	80	120	Fail
51	V	45	417.463	1574266	0.14	187.8	200	114.8	80	120	
52	Cr	45	339.824	1551693	0.72	130.4	200	104.7	80	120	
55	Mn	45	880.881	2464752	0.39	300.5	200	290.2	80	120	Fail
56	Fe	45	60618.426	252795101	0.72	55426.5	1000	519.2	80	120	Fail
59	Co	72	223.597	1591968	1.38	11.8	200	105.9	80	120	
60	Ni	72	225.881	440767	0.48	38.5	200	93.7	80	120	
63	Cu	72	199.828	1040330	0.19	15.6	200	92.1	80	120	
66	Zn	72	314.579	340728	0.15	176.8	200	68.9	80	120	Fail
75	As	72	207.222	180495	0.36	14.6	200	96.3	80	120	
78	Se	72	194.584	12085	1.35	3.0	200	95.8	80	120	
88	Sr	115	1262.864	5725838	0.66	1101.7	200	80.6	80	120	
95	Mo	115	182.245	659144	0.40	1.2	200	90.5	80	120	
107	Ag	115	185.561	2091330	1.46	0.1	200	92.7	80	120	
111	Cd	115	184.500	353369	0.28	0.5	200	92.0	80	120	
118	Sn	115	197.189	787892	0.27	6.9	200	95.1	80	120	
121	Sb	115	66.134	418970	0.24	0.4	200	32.9	80	120	Fail
137	Ba	115	635.496	1362388	0.18	296.0	200	169.8	80	120	Fail
205	Tl	209	200.942	5776292	1.03	1.0	200	100.0	80	120	
208	Pb	209	235.363	9168795	0.63	33.0	200	101.2	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	833453	0.77	878942	94.82	70	120	
72	Ge	647573	0.22	708357	91.42	70	120	
115	In	7723863	1.03	8356167	92.43	70	120	
209	Bi	19077762	0.52	21610870	88.28	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	8/1/2014 14:40	Sample Name	1407273-17C MSD ~~1403262-06A MSD~~
Data Batch	140801.b	Comment	MSD 6020A_S
Data File Name	132_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	177.878	6718	2.77	2.8	200	87.5	80	120	
11	B	45	242.527	4398	5.44	84.0	200	79.3	80	120	Fail
23	Na	45	5359.840	2431786	2.17	4335.1	1000	102.5	80	120	
24	Mg	45	18892.916	4285477	1.04	17312.5	1000	158.0	80	120	Fail
27	Al	45	########	11798018	1.57	106444.1	1000	744.0	80	120	Fail
39	K	45	12002.761	3144528	1.34	10778.3	1000	122.4	80	120	Fail
44	Ca	45	########	10810562	0.41	670822.0	1000	#####	80	120	Fail
47	Ti	45	628.381	69930	0.70	504.4	200	62.0	80	120	Fail
51	V	45	411.437	1525714	1.39	187.8	200	111.8	80	120	
52	Cr	45	342.443	1537738	1.15	130.4	200	106.0	80	120	
55	Mn	45	720.443	1982368	0.89	300.5	200	210.0	80	120	Fail
56	Fe	45	61789.763	253387723	0.66	55426.5	1000	636.3	80	120	Fail
59	Co	72	225.834	1585141	2.26	11.8	200	107.0	80	120	
60	Ni	72	231.276	444864	0.42	38.5	200	96.4	80	120	
63	Cu	72	206.525	1059881	0.36	15.6	200	95.5	80	120	
66	Zn	72	327.161	349300	0.27	176.8	200	75.2	80	120	Fail
75	As	72	214.615	184270	0.12	14.6	200	100.0	80	120	
78	Se	72	202.012	12368	1.78	3.0	200	99.5	80	120	
88	Sr	115	1269.990	5663743	1.81	1101.7	200	84.1	80	120	
95	Mo	115	189.327	673461	0.92	1.2	200	94.1	80	120	
107	Ag	115	188.025	2084208	0.86	0.1	200	94.0	80	120	
111	Cd	115	190.976	359764	0.67	0.5	200	95.2	80	120	
118	Sn	115	205.181	806345	0.59	6.9	200	99.1	80	120	
121	Sb	115	68.842	428971	0.11	0.4	200	34.2	80	120	Fail
137	Ba	115	609.755	1285761	0.25	296.0	200	156.9	80	120	Fail
205	Tl	209	207.114	5879721	0.22	1.0	200	103.1	80	120	
208	Pb	209	242.319	9322206	0.65	33.0	200	104.7	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	819572	0.56	878942	93.25	70	120	
72	Ge	638368	0.49	708357	90.12	70	120	
115	In	7596633	0.54	8356167	90.91	70	120	
209	Bi	18840463	0.77	21610870	87.18	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/1/2014 14:42	Sample Name	CCV3-140801
Data Batch	140801.b	Comment	CCV ICPMS_TW
Data File Name	133_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	193.390	7446	0.50	200	96.7	90	110	
11	B	45	190.902	3542	8.36	200	95.5	90	110	
23	Na	45	4908.113	2271663	2.13	5000	98.2	90	110	
24	Mg	45	4857.436	1123776	0.27	5000	97.1	90	110	
27	Al	45	4830.995	511230	1.22	5000	96.6	90	110	
39	K	45	5248.899	1416826	1.47	5000	105.0	90	110	
44	Ca	45	5114.800	88827	1.96	5000	102.3	90	110	
47	Ti	45	214.298	24318	0.65	200	107.1	90	110	
51	V	45	211.823	802456	0.32	200	105.9	90	110	
52	Cr	45	215.888	989168	0.71	200	107.9	90	110	
55	Mn	45	210.706	591218	0.68	200	105.4	90	110	
56	Fe	45	5080.593	21257990	1.18	5000	101.6	90	110	
59	Co	72	213.740	1620954	1.27	200	106.9	90	110	
60	Ni	72	207.378	431071	1.17	200	103.7	90	110	
63	Cu	72	210.959	1169733	0.62	200	105.5	90	110	
66	Zn	72	203.545	234966	0.69	200	101.8	90	110	
75	As	72	207.148	192178	0.33	200	103.6	90	110	
78	Se	72	204.394	13520	0.42	200	102.2	90	110	
88	Sr	115	210.403	993576	0.61	200	105.2	90	110	
95	Mo	115	211.349	795728	0.73	200	105.7	90	110	
107	Ag	115	216.138	2536394	0.58	200	108.1	90	110	
111	Cd	115	208.193	415205	0.77	200	104.1	90	110	
118	Sn	115	216.967	902612	0.66	200	108.5	90	110	
121	Sb	115	207.799	1370587	0.61	200	103.9	90	110	
137	Ba	115	212.338	474076	0.32	200	106.2	90	110	
205	Tl	209	211.054	6743617	0.52	200	105.5	90	110	
208	Pb	209	213.875	9261056	0.49	200	106.9	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	835545	0.61	878942	95.06	70	120	
72	Ge	689741	0.38	708357	97.37	70	120	
115	In	8042057	0.32	8356167	96.24	70	120	
209	Bi	21205222	0.42	21610870	98.12	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/1/2014 14:46	Sample Name	LCVL3-140801
Data Batch	140801.b	Comment	LCVLICPMS_TW
Data File Name	135LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	1.033	41	17.79	1	103.3	70	130	
11	B	45	17.577	383	17.13	20	87.9	70	130	
23	Na	45	114.981	73050	0.20	100	115.0	70	130	
24	Mg	45	102.409	24441	2.35	100	102.4	70	130	
27	Al	45	103.927	12084	5.71	100	103.9	70	130	
39	K	45	111.309	56333	1.70	100	111.3	70	130	
44	Ca	45	136.964	2690	4.21	100	137.0	70	130	Fail
47	Ti	45	5.518	638	3.19	5	110.4	70	130	
51	V	45	0.696	5984	4.72	1	69.6	70	130	Fail
52	Cr	45	5.664	28393	0.65	5	113.3	70	130	
55	Mn	45	5.451	15589	2.21	5	109.0	70	130	
56	Fe	45	106.757	467176	0.80	100	106.8	70	130	
59	Co	72	5.320	41130	0.99	5	106.4	70	130	
60	Ni	72	5.287	11898	1.52	5	105.7	70	130	
63	Cu	72	5.362	31141	0.42	5	107.2	70	130	
66	Zn	72	5.070	6379	4.06	5	101.4	70	130	
75	As	72	5.186	5018	2.12	5	103.7	70	130	
78	Se	72	5.690	405	7.34	5	113.8	70	130	
88	Sr	115	5.267	25869	1.35	5	105.3	70	130	
95	Mo	115	4.971	20419	0.79	5	99.4	70	130	
107	Ag	115	2.128	25717	0.52	2	106.4	70	130	
111	Cd	115	1.092	2244	3.11	1	109.2	70	130	
118	Sn	115	5.358	23518	0.93	5	107.2	70	130	
121	Sb	115	2.121	14455	1.51	2	106.0	70	130	
137	Ba	115	5.306	12277	1.71	5	106.1	70	130	
205	Tl	209	1.122	37049	1.24	1	112.2	70	130	
208	Pb	209	1.111	53295	1.04	1	111.1	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	841329	0.37	878942	95.72	70	120	
72	Ge	701690	0.31	708357	99.06	70	120	
115	In	8257518	0.11	8356167	98.82	70	120	
209	Bi	21467128	0.78	21610870	99.33	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/1/2014 14:50	Sample Name	CCB3-140801
Data Batch	140801.b	Comment	CCB ICPMS_TW
Data File Name	136_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.036	2	86.6	0.4	0.3	
11	B	45	1.330	84	49.4	10	10	
23	Na	45	14.771	26528	0.2	50	100	
24	Mg	45	-1.272	300	9.1	50	100	
27	Al	45	0.152	1039	4.7	50	10	
39	K	45	10.315	29149	2.4	50	100	
44	Ca	45	14.681	554	16.4	50	100	
47	Ti	45	0.062	14	74.2	4	3	
51	V	45	-0.352	1983	6.7	4	3	
52	Cr	45	-0.004	2286	7.4	2	2	
55	Mn	45	0.027	267	14.4	2	3	
56	Fe	45	1.274	22941	2.0	50	50	
59	Co	72	0.005	131	24.2	2	3	
60	Ni	72	0.073	874	5.5	2	3	
63	Cu	72	-0.028	748	3.0	2	2	
66	Zn	72	-0.019	406	9.1	4	2	
75	As	72	0.002	126	21.4	2	2	
78	Se	72	0.133	31	24.5	1	2	
88	Sr	115	0.035	504	7.9	4	3	
95	Mo	115	-0.210	418	2.8	2	2	
107	Ag	115	0.009	190	19.8	0.4	1	
111	Cd	115	0.012	31	43.3	0.4	0.3	
118	Sn	115	-0.043	459	16.0	4	3	
121	Sb	115	0.022	237	19.4	2	0.8	
137	Ba	115	0.008	133	9.0	2	3	
205	Tl	209	0.022	1447	4.4	2	0.5	
208	Pb	209	-0.001	4551	2.1	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	834267	0.48	878942	94.92	70	120	
72	Ge	689996	0.50	708357	97.41	70	120	
115	In	8207707	0.50	8356167	98.22	70	120	
209	Bi	21386921	0.74	21610870	98.96	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/1/2014 15:15	Sample Name	CCV4-140801
Data Batch	140801.b	Comment	CCV ICPMS_TW
Data File Name	149_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	187.230	7426	1.08	200	93.6	90	110	
11	B	45	195.085	3727	0.91	200	97.5	90	110	
23	Na	45	4839.087	2307504	0.79	5000	96.8	90	110	
24	Mg	45	4826.607	1150268	0.37	5000	96.5	90	110	
27	Al	45	4790.697	522214	0.28	5000	95.8	90	110	
39	K	45	5313.498	1477082	1.42	5000	106.3	90	110	
44	Ca	45	4932.066	88241	0.85	5000	98.6	90	110	
47	Ti	45	214.593	25085	2.06	200	107.3	90	110	
51	V	45	211.351	824777	0.21	200	105.7	90	110	
52	Cr	45	213.388	1007157	0.67	200	106.7	90	110	
55	Mn	45	210.429	608211	0.20	200	105.2	90	110	
56	Fe	45	5041.388	21728380	0.42	5000	100.8	90	110	
59	Co	72	214.861	1658887	0.97	200	107.4	90	110	
60	Ni	72	207.842	439854	0.64	200	103.9	90	110	
63	Cu	72	210.120	1186168	0.36	200	105.1	90	110	
66	Zn	72	204.486	240325	0.90	200	102.2	90	110	
75	As	72	209.093	197492	0.74	200	104.5	90	110	
78	Se	72	210.261	14159	1.03	200	105.1	90	110	
88	Sr	115	210.593	1016227	0.46	200	105.3	90	110	
95	Mo	115	208.607	802602	0.61	200	104.3	90	110	
107	Ag	115	211.642	2537967	0.48	200	105.8	90	110	
111	Cd	115	204.747	417268	0.50	200	102.4	90	110	
118	Sn	115	213.860	909163	0.25	200	106.9	90	110	
121	Sb	115	204.807	1380414	0.21	200	102.4	90	110	
137	Ba	115	210.910	481186	0.47	200	105.5	90	110	
205	Tl	209	208.956	6622759	1.34	200	104.5	90	110	
208	Pb	209	210.739	9051542	1.02	200	105.4	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	860694	0.32	878942	97.92	70	120	
72	Ge	702215	0.16	708357	99.13	70	120	
115	In	8217972	0.28	8356167	98.35	70	120	
209	Bi	21033661	0.68	21610870	97.33	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/1/2014 15:21	Sample Name	LCVL4-140801
Data Batch	140801.b	Comment	LCVLICPMS_TW
Data File Name	151LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	1.060	44	18.37	1	106.0	70	130	
11	B	45	18.559	420	10.68	20	92.8	70	130	
23	Na	45	105.471	71847	1.81	100	105.5	70	130	
24	Mg	45	98.845	24711	0.71	100	98.8	70	130	
27	Al	45	98.625	12056	2.41	100	98.6	70	130	
39	K	45	105.079	57212	0.63	100	105.1	70	130	
44	Ca	45	110.785	2338	5.97	100	110.8	70	130	
47	Ti	45	5.187	628	3.61	5	103.7	70	130	
51	V	45	0.709	6313	2.20	1	70.9	70	130	
52	Cr	45	5.475	28807	1.84	5	109.5	70	130	
55	Mn	45	5.412	16198	1.42	5	108.2	70	130	
56	Fe	45	104.012	476807	0.87	100	104.0	70	130	
59	Co	72	5.238	42081	1.27	5	104.8	70	130	
60	Ni	72	5.293	12376	1.86	5	105.9	70	130	
63	Cu	72	5.309	32050	1.35	5	106.2	70	130	
66	Zn	72	4.993	6534	1.84	5	99.9	70	130	
75	As	72	5.121	5150	1.05	5	102.4	70	130	
78	Se	72	5.154	383	6.77	5	103.1	70	130	
88	Sr	115	5.175	26193	1.57	5	103.5	70	130	
95	Mo	115	4.735	20102	1.49	5	94.7	70	130	
107	Ag	115	2.130	26528	0.54	2	106.5	70	130	
111	Cd	115	1.110	2350	2.28	1	111.0	70	130	
118	Sn	115	5.268	23836	0.65	5	105.4	70	130	
121	Sb	115	2.087	14656	1.44	2	104.3	70	130	
137	Ba	115	5.139	12254	3.00	5	102.8	70	130	
205	Tl	209	1.046	34749	0.75	1	104.6	70	130	
208	Pb	209	1.047	50738	1.27	1	104.7	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	880453	0.37	878942	100.17	70	120	
72	Ge	729113	0.11	708357	102.93	70	120	
115	In	8507983	0.47	8356167	101.82	70	120	
209	Bi	21574910	1.24	21610870	99.83	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/1/2014 15:23	Sample Name	CCB4-140801
Data Batch	140801.b	Comment	CCB ICPMS_TW
Data File Name	152_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	-0.008	0	173.2	0.4	0.3	
11	B	45	-0.412	56	27.1	10	10	
23	Na	45	10.455	25929	1.3	50	100	
24	Mg	45	-1.451	273	4.4	50	100	
27	Al	45	0.068	1088	12.3	50	10	
39	K	45	6.717	29780	1.8	50	100	
44	Ca	45	2.699	367	4.0	50	100	
47	Ti	45	-0.009	7	86.6	4	3	
51	V	45	-0.441	1742	3.3	4	3	
52	Cr	45	-0.028	2298	5.2	2	2	
55	Mn	45	0.046	337	15.2	2	3	
56	Fe	45	1.662	25939	1.1	50	50	
59	Co	72	0.001	107	28.1	2	3	
60	Ni	72	0.023	814	9.4	2	3	
63	Cu	72	-0.020	833	6.3	2	2	
66	Zn	72	-0.054	386	2.2	4	2	
75	As	72	-0.019	112	9.2	2	2	
78	Se	72	0.150	34	20.3	1	2	
88	Sr	115	0.004	372	10.7	4	3	
95	Mo	115	-0.217	407	7.4	2	2	
107	Ag	115	0.005	150	14.6	0.4	1	
111	Cd	115	0.004	17	52.9	0.4	0.3	
118	Sn	115	-0.061	400	13.8	4	3	
121	Sb	115	0.039	371	15.1	2	0.8	
137	Ba	115	0.007	136	15.8	2	3	
205	Tl	209	0.009	1058	4.3	2	0.5	
208	Pb	209	-0.007	4358	2.5	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	881133	0.39	878942	100.25	70	120	
72	Ge	727605	0.26	708357	102.72	70	120	
115	In	8527573	0.60	8356167	102.05	70	120	
209	Bi	21833035	0.95	21610870	101.03	70	120	

Method Blank Report

Date Acquired	8/1/14 3:26 PM	Sample Name	MB-64961
Data Batch	140801.b	Comment	MBLK6020A_S
Data File Name	153_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.016	1	86.60		
11	B	45	-1.155	41	20.41		
23	Na	45	17.903	29404	2.25		
24	Mg	45	4.664	1757	8.92		
27	Al	45	0.219	1100	3.28		
39	K	45	17.750	32718	0.75		
44	Ca	45	12.631	546	4.07		
47	Ti	45	0.112	21	55.45		
51	V	45	-0.424	1803	6.49		
52	Cr	45	0.083	2822	0.36		
55	Mn	45	0.091	468	6.62		
56	Fe	45	4.276	37295	2.91		
59	Co	72	0.004	124	16.37		
60	Ni	72	0.042	841	4.58		
63	Cu	72	0.041	1171	10.03		
66	Zn	72	1.797	2590	7.48		
75	As	72	-0.006	123	15.19		
78	Se	72	0.150	33	13.49		
88	Sr	115	0.022	462	5.83		
95	Mo	115	-0.240	314	10.67		
107	Ag	115	0.004	140	6.30		
111	Cd	115	0.007	22	17.33		
118	Sn	115	3.992	18384	0.90		
121	Sb	115	0.050	447	18.84		
137	Ba	115	0.029	189	17.68		
205	Tl	209	0.007	994	5.61		
208	Pb	209	0.044	6677	1.78		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	877252	0.27	878942	99.81	70	120	
72	Ge	714988	0.60	708357	100.94	70	120	
115	In	8584111	1.37	8356167	102.73	70	120	
209	Bi	22018085	0.50	21610870	101.88	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	8/1/2014 15:28	Sample Name	LCS-64961
Data Batch	140801.b	Comment	LCS 6020A_S
Data File Name	154_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	184.682	7299	2.06	200	184.7	80	120	
11	B	45	181.814	3465	5.16	200	181.8	80	120	
23	Na	45	991.573	487300	0.72	1000	991.6	80	120	
24	Mg	45	988.740	235294	1.42	1000	988.7	80	120	
27	Al	45	963.766	105528	2.04	1000	963.8	80	120	
39	K	45	1034.038	308297	0.32	1000	1034.0	80	120	
44	Ca	45	1516.554	27250	0.26	1000	1516.6	80	120	Fail
47	Ti	45	206.337	24034	1.33	200	206.3	80	120	
51	V	45	207.385	806490	0.47	200	207.4	80	120	
52	Cr	45	210.035	987864	0.64	200	210.0	80	120	
55	Mn	45	207.895	598764	0.74	200	207.9	80	120	
56	Fe	45	1027.476	4427350	1.17	1000	1027.5	80	120	
59	Co	72	212.673	1642895	0.96	200	212.7	80	120	
60	Ni	72	206.093	436394	0.47	200	206.1	80	120	
63	Cu	72	208.055	1175169	0.73	200	208.1	80	120	
66	Zn	72	203.806	239660	0.46	200	203.8	80	120	
75	As	72	202.549	191420	0.65	200	202.5	80	120	
78	Se	72	202.124	13620	1.82	200	202.1	80	120	
88	Sr	115	203.109	982802	1.13	200	203.1	80	120	
95	Mo	115	204.333	788321	0.74	200	204.3	80	120	
107	Ag	115	211.153	2539019	1.25	200	211.2	80	120	
111	Cd	115	200.992	410740	1.11	200	201.0	80	120	
118	Sn	115	214.039	912388	0.76	200	214.0	80	120	
121	Sb	115	200.201	1353002	0.66	200	200.2	80	120	
137	Ba	115	207.027	473622	0.79	200	207.0	80	120	
205	Tl	209	207.744	6669508	1.11	200	207.7	80	120	
208	Pb	209	209.156	9100132	1.14	200	209.2	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	857650	0.56	878942	97.58	70	120	
72	Ge	702605	0.46	708357	99.19	70	120	
115	In	8240805	1.33	8356167	98.62	70	120	
209	Bi	21306470	0.75	21610870	98.59	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	8/1/2014 15:30	Sample Name	LCSD-64961
Data Batch	140801.b	Comment	LCSD6020A_S
Data File Name	155_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	184.941	7194	1.83	200	184.9	80	120	
11	B	45	183.806	3447	5.16	200	183.8	80	120	
23	Na	45	997.475	482322	0.07	1000	997.5	80	120	
24	Mg	45	1005.002	235355	0.70	1000	1005.0	80	120	
27	Al	45	985.798	106203	0.41	1000	985.8	80	120	
39	K	45	1028.735	301994	0.29	1000	1028.7	80	120	
44	Ca	45	1536.275	27164	1.30	1000	1536.3	80	120	Fail
47	Ti	45	207.226	23755	1.37	200	207.2	80	120	
51	V	45	209.026	799975	0.19	200	209.0	80	120	
52	Cr	45	213.266	987134	0.49	200	213.3	80	120	
55	Mn	45	209.071	592614	0.67	200	209.1	80	120	
56	Fe	45	1040.215	4410839	0.51	1000	1040.2	80	120	
59	Co	72	214.104	1632733	0.89	200	214.1	80	120	
60	Ni	72	206.539	431728	0.44	200	206.5	80	120	
63	Cu	72	209.008	1165408	0.59	200	209.0	80	120	
66	Zn	72	203.649	236404	0.27	200	203.6	80	120	
75	As	72	204.495	190779	0.21	200	204.5	80	120	
78	Se	72	203.811	13557	0.67	200	203.8	80	120	
88	Sr	115	202.092	976575	0.27	200	202.1	80	120	
95	Mo	115	204.400	787532	0.35	200	204.4	80	120	
107	Ag	115	207.737	2494624	0.32	200	207.7	80	120	
111	Cd	115	199.291	406702	0.48	200	199.3	80	120	
118	Sn	115	212.678	905396	0.52	200	212.7	80	120	
121	Sb	115	199.562	1346911	0.34	200	199.6	80	120	
137	Ba	115	207.629	474365	0.30	200	207.6	80	120	
205	Tl	209	209.739	6683111	0.80	200	209.7	80	120	
208	Pb	209	211.079	9115071	0.47	200	211.1	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	844053	0.12	878942	96.03	70	120	
72	Ge	693590	0.13	708357	97.92	70	120	
115	In	8229531	0.60	8356167	98.48	70	120	
209	Bi	21146938	0.44	21610870	97.85	70	120	

Dilution Sample (Dil) Report

Date Acquired	8/1/2014 15:36	Sample Name	1407279-17C SD
Data Batch	140801.b	Comment	SD 6020A_S
Data File Name	158_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
9	Be	45	0.520	21	11.80	3.6	72.0	110	90	
11	B	45	10.684	263	11.03	41.2	129.7	110	90	
23	Na	45	471.380	243659	0.29	2214.9	106.4	110	90	Good
24	Mg	45	4236.260	1011672	1.34	20336.0	104.2	110	90	Good
27	Al	45	23657.022	2579885	2.42	114093.9	103.7	110	90	Good
39	K	45	2119.842	606860	0.62	10571.1	100.3	110	90	Good
44	Ca	45	29091.781	520006	0.84	145300.8	100.1	110	90	Good
47	Ti	45	55.046	6454	3.44	275.1	100.1	110	90	Good
51	V	45	35.368	141141	0.33	174.9	101.1	110	90	Good
52	Cr	45	26.434	127097	0.60	128.0	103.2	110	90	Good
55	Mn	45	178.784	517793	0.55	892.3	100.2	110	90	Good
56	Fe	45	12846.702	55449074	0.79	61714.1	104.1	110	90	Good
59	Co	72	5.501	42845	0.75	27.0	101.8	110	90	Good
60	Ni	72	10.438	22942	1.14	49.5	105.4	110	90	Good
63	Cu	72	5.944	34675	0.82	28.6	104.0	110	90	Good
66	Zn	72	37.908	45206	0.53	183.9	103.1	110	90	Good
75	As	72	2.675	2669	1.91	13.6	98.5	110	90	Good
78	Se	72	0.981	89	5.82	4.3	114.1	110	90	
88	Sr	115	81.318	400804	0.37	425.9	95.5	110	90	Good
95	Mo	115	-0.148	670	7.82	0.2	-407.6	110	90	
107	Ag	115	0.041	590	9.80	0.2	133.0	110	90	
111	Cd	115	0.152	323	11.15	0.6	131.8	110	90	
118	Sn	115	1.337	6454	2.36	6.7	99.3	110	90	Good
121	Sb	115	0.097	758	16.75	0.4	128.8	110	90	
137	Ba	115	73.807	171974	0.88	364.9	101.1	110	90	Good
205	Tl	209	0.230	8338	2.40	1.0	109.9	110	90	Good
208	Pb	209	10.171	457658	0.61	50.8	100.1	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	862399	0.53	878942	98.12	70	120	
72	Ge	706911	0.47	708357	99.80	70	120	
115	In	8389340	0.46	8356167	100.40	70	120	
209	Bi	21820644	0.68	21610870	100.97	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	8/1/2014 15:55	Sample Name	1407279-17C PDS
Data Batch	140801.b	Comment	PDS 6020A_S
Data File Name	168_PDS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	184.190	6956	0.83	3.6	200	90.3	75	125	
11	B	45	221.811	4027	3.82	41.2	200	90.3	75	125	
23	Na	45	7670.480	3471732	0.81	2214.9	5000	109.1	75	125	
24	Mg	45	26466.780	6003628	0.63	20336.0	5000	122.6	75	125	
27	Al	45	########	12986658	0.63	114093.9	5000	225.3	75	125	Fail
39	K	45	16999.722	4442906	0.84	10571.1	5000	128.6	75	125	Fail
44	Ca	45	########	2742972	1.89	145300.8	5000	324.8	75	125	Fail
47	Ti	45	502.424	55914	0.69	275.1	200	113.7	75	125	
51	V	45	412.950	1531596	2.72	174.9	200	119.0	75	125	
52	Cr	45	363.262	1631079	0.18	128.0	200	117.6	75	125	
55	Mn	45	1158.246	3187148	1.32	892.3	200	133.0	75	125	Fail
56	Fe	45	70963.237	291026682	0.75	61714.1	5000	185.0	75	125	Fail
59	Co	72	245.648	1759123	0.48	27.0	200	109.3	75	125	
60	Ni	72	253.829	498088	0.79	49.5	200	102.2	75	125	
63	Cu	72	233.252	1221231	0.23	28.6	200	102.3	75	125	
66	Zn	72	393.619	428706	0.48	183.9	200	104.9	75	125	
75	As	72	225.505	197546	0.50	13.6	200	106.0	75	125	
78	Se	72	214.285	13384	0.69	4.3	200	105.0	75	125	
88	Sr	115	678.327	3083298	1.91	425.9	200	126.2	75	125	Fail
95	Mo	115	202.800	735039	0.44	0.2	200	101.3	75	125	
107	Ag	115	193.415	2185160	2.13	0.2	200	96.6	75	125	
111	Cd	115	205.072	393716	0.80	0.6	200	102.2	75	125	
118	Sn	115	226.657	907654	0.70	6.7	200	110.0	75	125	
121	Sb	115	210.447	1336202	0.58	0.4	200	105.0	75	125	
137	Ba	115	606.953	1304294	0.42	364.9	200	121.0	75	125	
205	Tl	209	213.912	6349665	0.48	1.0	200	106.4	75	125	
208	Pb	209	273.426	10998242	0.40	50.8	200	111.3	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	819611	0.62	878942	93.25	70	120	
72	Ge	651321	0.05	708357	91.95	70	120	
115	In	7742234	1.31	8356167	92.65	70	120	
209	Bi	19700188	0.67	21610870	91.16	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	8/1/2014 15:57	Sample Name	1407279-17C MS
Data Batch	140801.b	Comment	MS 6020A_S
Data File Name	169_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	168.459	6373	0.99	3.6	200	82.4	80	120	
11	B	45	190.864	3479	3.28	41.2	200	74.8	80	120	Fail
23	Na	45	3100.068	1417097	2.50	2214.9	1000	88.5	80	120	
24	Mg	45	21269.658	4833059	0.71	20336.0	1000	93.4	80	120	
27	Al	45	########	12200502	0.84	114093.9	1000	347.4	80	120	Fail
39	K	45	12107.920	3177161	1.57	10571.1	1000	153.7	80	120	Fail
44	Ca	45	########	2413335	0.47	145300.8	1000	-340.5	80	120	Fail
47	Ti	45	382.085	42598	1.55	275.1	200	53.5	80	120	Fail
51	V	45	404.404	1502388	1.44	174.9	200	114.8	80	120	
52	Cr	45	334.186	1503253	0.79	128.0	200	103.1	80	120	
55	Mn	45	1394.143	3842640	1.61	892.3	200	250.9	80	120	Fail
56	Fe	45	65250.013	268046665	0.36	61714.1	1000	353.6	80	120	Fail
59	Co	72	228.426	1650310	1.00	27.0	200	100.7	80	120	
60	Ni	72	240.689	476536	0.17	49.5	200	95.6	80	120	
63	Cu	72	216.858	1145550	0.07	28.6	200	94.1	80	120	
66	Zn	72	365.747	401922	0.45	183.9	200	90.9	80	120	
75	As	72	205.103	181281	0.31	13.6	200	95.8	80	120	
78	Se	72	194.751	12274	0.18	4.3	200	95.2	80	120	
88	Sr	115	636.767	2907071	0.86	425.9	200	105.4	80	120	
95	Mo	115	174.341	634945	0.38	0.2	200	87.1	80	120	
107	Ag	115	192.554	2185057	0.92	0.2	200	96.2	80	120	
111	Cd	115	190.639	367648	0.75	0.6	200	95.0	80	120	
118	Sn	115	198.978	800514	0.71	6.7	200	96.1	80	120	
121	Sb	115	62.252	397094	1.27	0.4	200	30.9	80	120	Fail
137	Ba	115	549.499	1186177	0.27	364.9	200	92.3	80	120	
205	Tl	209	202.848	6000521	0.44	1.0	200	100.9	80	120	
208	Pb	209	256.028	10262934	0.48	50.8	200	102.6	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	820980	0.21	878942	93.41	70	120	
72	Ge	657116	0.36	708357	92.77	70	120	
115	In	7776717	0.58	8356167	93.07	70	120	
209	Bi	19631383	0.10	21610870	90.84	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	8/1/2014 15:59	Sample Name	1407279-17C MSD
Data Batch	140801.b	Comment	MSD 6020A_S
Data File Name	170_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	168.705	6354	0.53	3.6	200	82.5	80	120	
11	B	45	186.117	3379	3.93	41.2	200	72.5	80	120	Fail
23	Na	45	3159.023	1437233	1.09	2214.9	1000	94.4	80	120	
24	Mg	45	20906.176	4729396	0.76	20336.0	1000	57.0	80	120	Fail
27	Al	45	########	12263672	0.85	114093.9	1000	460.8	80	120	Fail
39	K	45	12004.731	3136378	0.92	10571.1	1000	143.4	80	120	Fail
44	Ca	45	########	2792585	2.09	145300.8	1000	1962.8	80	120	Fail
47	Ti	45	399.098	44295	0.15	275.1	200	62.0	80	120	Fail
51	V	45	396.332	1465894	0.93	174.9	200	110.7	80	120	
52	Cr	45	330.102	1478309	0.74	128.0	200	101.0	80	120	
55	Mn	45	1450.496	3980182	0.69	892.3	200	279.1	80	120	Fail
56	Fe	45	67087.679	274371358	0.12	61714.1	1000	537.4	80	120	Fail
59	Co	72	228.330	1651165	0.22	27.0	200	100.7	80	120	
60	Ni	72	237.191	470051	0.39	49.5	200	93.8	80	120	
63	Cu	72	212.979	1126126	0.11	28.6	200	92.2	80	120	
66	Zn	72	364.933	401400	0.14	183.9	200	90.5	80	120	
75	As	72	203.780	180284	0.53	13.6	200	95.1	80	120	
78	Se	72	192.310	12132	0.69	4.3	200	94.0	80	120	
88	Sr	115	655.222	2999954	0.79	425.9	200	114.7	80	120	
95	Mo	115	173.822	634856	0.18	0.2	200	86.8	80	120	
107	Ag	115	193.004	2196522	1.13	0.2	200	96.4	80	120	
111	Cd	115	186.408	360502	0.69	0.6	200	92.9	80	120	
118	Sn	115	197.404	796462	0.46	6.7	200	95.3	80	120	
121	Sb	115	64.588	413188	0.57	0.4	200	32.1	80	120	Fail
137	Ba	115	613.760	1328628	0.23	364.9	200	124.4	80	120	Fail
205	Tl	209	197.907	5860100	1.34	1.0	200	98.4	80	120	
208	Pb	209	251.776	10102537	0.09	50.8	200	100.5	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	817332	0.21	878942	92.99	70	120	
72	Ge	657738	0.64	708357	92.85	70	120	
115	In	7798982	0.75	8356167	93.33	70	120	
209	Bi	19651749	0.85	21610870	90.93	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/1/2014 16:05	Sample Name	CCV5-140801
Data Batch	140801.b	Comment	CCV ICPMS_TW
Data File Name	172_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	186.846	6969	0.70	200	93.4	90	110	
11	B	45	187.672	3374	4.15	200	93.8	90	110	
23	Na	45	4799.606	2152459	0.14	5000	96.0	90	110	
24	Mg	45	4745.994	1063762	1.08	5000	94.9	90	110	
27	Al	45	4695.928	481426	0.52	5000	93.9	90	110	
39	K	45	5224.694	1366389	1.46	5000	104.5	90	110	
44	Ca	45	4865.648	81874	1.23	5000	97.3	90	110	
47	Ti	45	210.079	23094	0.94	200	105.0	90	110	
51	V	45	210.012	770763	0.38	200	105.0	90	110	
52	Cr	45	211.051	936854	0.70	200	105.5	90	110	
55	Mn	45	207.803	564864	0.59	200	103.9	90	110	
56	Fe	45	5030.602	20391369	0.80	5000	100.6	90	110	
59	Co	72	211.774	1551655	0.41	200	105.9	90	110	
60	Ni	72	204.931	411571	0.24	200	102.5	90	110	
63	Cu	72	208.210	1115449	0.68	200	104.1	90	110	
66	Zn	72	201.351	224578	0.81	200	100.7	90	110	
75	As	72	205.942	184596	0.64	200	103.0	90	110	
78	Se	72	205.539	13135	0.71	200	102.8	90	110	
88	Sr	115	205.756	963184	0.75	200	102.9	90	110	
95	Mo	115	203.549	759744	0.38	200	101.8	90	110	
107	Ag	115	207.206	2410487	0.59	200	103.6	90	110	
111	Cd	115	201.043	397461	0.80	200	100.5	90	110	
118	Sn	115	211.629	872765	0.78	200	105.8	90	110	
121	Sb	115	202.345	1322994	1.23	200	101.2	90	110	
137	Ba	115	208.962	462490	1.11	200	104.5	90	110	
205	Tl	209	210.779	6504877	1.26	200	105.4	90	110	
208	Pb	209	213.471	8928149	0.45	200	106.7	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	809477	1.13	878942	92.10	70	120	
72	Ge	666395	0.41	708357	94.08	70	120	
115	In	7972696	0.99	8356167	95.41	70	120	
209	Bi	20481285	0.45	21610870	94.77	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/1/2014 16:09	Sample Name	LCVL5-140801
Data Batch	140801.b	Comment	LCVLICPMS_TW
Data File Name	174LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.929	35	17.06	1	92.9	70	130	
11	B	45	17.592	370	7.37	20	88.0	70	130	
23	Na	45	103.692	65396	0.44	100	103.7	70	130	
24	Mg	45	98.182	22614	1.95	100	98.2	70	130	
27	Al	45	97.288	10968	2.37	100	97.3	70	130	
39	K	45	114.590	55154	1.35	100	114.6	70	130	
44	Ca	45	113.935	2207	4.68	100	113.9	70	130	
47	Ti	45	5.332	594	4.06	5	106.6	70	130	
51	V	45	0.675	5691	5.32	1	67.5	70	130	Fail
52	Cr	45	5.410	26247	0.43	5	108.2	70	130	
55	Mn	45	5.296	14607	2.05	5	105.9	70	130	
56	Fe	45	102.407	432720	0.65	100	102.4	70	130	
59	Co	72	5.216	38674	1.12	5	104.3	70	130	
60	Ni	72	5.196	11226	1.31	5	103.9	70	130	
63	Cu	72	5.225	29124	2.51	5	104.5	70	130	
66	Zn	72	5.398	6486	0.67	5	108.0	70	130	
75	As	72	5.219	4842	1.73	5	104.4	70	130	
78	Se	72	5.182	356	2.49	5	103.6	70	130	
88	Sr	115	5.181	24798	1.10	5	103.6	70	130	
95	Mo	115	4.727	18977	0.52	5	94.5	70	130	
107	Ag	115	2.070	24380	1.38	2	103.5	70	130	
111	Cd	115	1.023	2048	4.04	1	102.3	70	130	
118	Sn	115	5.260	22502	1.89	5	105.2	70	130	
121	Sb	115	2.039	13545	1.29	2	102.0	70	130	
137	Ba	115	5.160	11636	2.47	5	103.2	70	130	
205	Tl	209	1.060	33505	1.93	1	106.0	70	130	
208	Pb	209	1.075	49440	1.44	1	107.5	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	811128	0.71	878942	92.28	70	120	
72	Ge	672961	0.64	708357	95.00	70	120	
115	In	8044640	0.31	8356167	96.27	70	120	
209	Bi	20529753	0.36	21610870	95.00	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/1/2014 16:13	Sample Name	CCB5-140801
Data Batch	140801.b	Comment	CCB ICPMS_TW
Data File Name	175_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	-0.007	0	173.2	0.4	0.3	
11	B	45	-0.910	42	48.2	10	10	
23	Na	45	6.768	22144	0.4	50	100	
24	Mg	45	-1.563	226	14.0	50	100	
27	Al	45	-1.698	818	11.6	50	10	
39	K	45	11.264	28476	0.4	50	100	
44	Ca	45	3.789	354	12.8	50	100	
47	Ti	45	-0.045	2	173.2	4	3	
51	V	45	-0.389	1788	3.0	4	3	
52	Cr	45	-0.029	2105	1.1	2	2	
55	Mn	45	0.022	243	8.3	2	3	
56	Fe	45	0.945	20887	2.2	50	50	
59	Co	72	0.010	162	23.7	2	3	
60	Ni	72	0.025	751	3.0	2	3	
63	Cu	72	-0.030	710	8.1	2	2	
66	Zn	72	-0.051	357	13.2	4	2	
75	As	72	-0.003	117	17.8	2	2	
78	Se	72	0.229	36	10.8	1	2	
88	Sr	115	0.005	352	7.0	4	3	
95	Mo	115	-0.222	363	18.6	2	2	
107	Ag	115	0.011	211	15.3	0.4	1	
111	Cd	115	0.008	23	49.5	0.4	0.3	
118	Sn	115	-0.042	456	14.9	4	3	
121	Sb	115	0.025	257	27.9	2	0.8	
137	Ba	115	-0.005	102	13.6	2	3	
205	Tl	209	0.015	1176	10.8	2	0.5	
208	Pb	209	0.018	5196	5.4	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	808062	0.51	878942	91.94	70	120	
72	Ge	668821	0.72	708357	94.42	70	120	
115	In	8025623	1.76	8356167	96.04	70	120	
209	Bi	20624976	0.57	21610870	95.44	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/1/2014 16:46	Sample Name	CCV6-140801
Data Batch	140801.b	Comment	CCV ICPMS_TW
Data File Name	191_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	180.147	6361	1.39	200	90.1	90	110	
11	B	45	184.075	3134	0.59	200	92.0	90	110	
23	Na	45	4733.495	2009539	2.31	5000	94.7	90	110	
24	Mg	45	4701.955	997557	0.72	5000	94.0	90	110	
27	Al	45	4709.022	456981	0.78	5000	94.2	90	110	
39	K	45	5064.411	1254376	0.45	5000	101.3	90	110	
44	Ca	45	4856.347	77352	0.79	5000	97.1	90	110	
47	Ti	45	210.354	21890	1.36	200	105.2	90	110	
51	V	45	208.953	725941	0.69	200	104.5	90	110	
52	Cr	45	209.364	879725	0.55	200	104.7	90	110	
55	Mn	45	207.057	532768	0.75	200	103.5	90	110	
56	Fe	45	4966.096	19053452	0.80	5000	99.3	90	110	
59	Co	72	208.042	1454358	2.08	200	104.0	90	110	
60	Ni	72	200.605	384453	0.48	200	100.3	90	110	
63	Cu	72	203.621	1040925	0.57	200	101.8	90	110	
66	Zn	72	197.480	210182	0.48	200	98.7	90	110	
75	As	72	204.912	175262	0.40	200	102.5	90	110	
78	Se	72	206.403	12587	1.60	200	103.2	90	110	
88	Sr	115	206.796	922542	0.95	200	103.4	90	110	
95	Mo	115	201.483	716688	0.74	200	100.7	90	110	
107	Ag	115	206.653	2290959	0.67	200	103.3	90	110	
111	Cd	115	198.691	374339	1.21	200	99.3	90	110	
118	Sn	115	209.376	822896	0.56	200	104.7	90	110	
121	Sb	115	200.994	1252409	0.78	200	100.5	90	110	
137	Ba	115	208.660	440105	0.55	200	104.3	90	110	
205	Tl	209	207.842	6058979	1.21	200	103.9	90	110	
208	Pb	209	211.120	8340510	0.98	200	105.6	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	766202	0.65	878942	87.17	70	120	
72	Ge	635913	0.93	708357	89.77	70	120	
115	In	7597406	0.50	8356167	90.92	70	120	
209	Bi	19346967	1.48	21610870	89.52	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/1/2014 16:51	Sample Name	LCVL6-140801
Data Batch	140801.b	Comment	LCVLICPMS_TW
Data File Name	193LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.866	32	32.87	1	86.6	70	130	
11	B	45	20.238	400	7.95	20	101.2	70	130	
23	Na	45	96.716	59787	1.47	100	96.7	70	130	
24	Mg	45	97.592	21580	1.50	100	97.6	70	130	
27	Al	45	97.290	10528	2.06	100	97.3	70	130	
39	K	45	113.135	52574	0.98	100	113.1	70	130	
44	Ca	45	112.088	2088	2.58	100	112.1	70	130	
47	Ti	45	5.244	561	0.34	5	104.9	70	130	
51	V	45	0.675	5463	3.37	1	67.5	70	130	Fail
52	Cr	45	5.510	25618	1.45	5	110.2	70	130	
55	Mn	45	5.335	14121	1.25	5	106.7	70	130	
56	Fe	45	102.074	414029	0.46	100	102.1	70	130	
59	Co	72	5.132	36670	0.64	5	102.6	70	130	
60	Ni	72	5.257	10936	1.14	5	105.1	70	130	
63	Cu	72	5.138	27608	1.64	5	102.8	70	130	
66	Zn	72	5.258	6098	2.94	5	105.2	70	130	
75	As	72	5.108	4569	1.30	5	102.2	70	130	
78	Se	72	5.126	339	5.54	5	102.5	70	130	
88	Sr	115	5.223	24104	2.20	5	104.5	70	130	
95	Mo	115	4.767	18443	0.30	5	95.3	70	130	
107	Ag	115	2.047	23247	1.46	2	102.3	70	130	
111	Cd	115	1.087	2098	4.78	1	108.7	70	130	
118	Sn	115	5.261	21707	1.60	5	105.2	70	130	
121	Sb	115	2.040	13064	1.86	2	102.0	70	130	
137	Ba	115	5.283	11484	1.03	5	105.7	70	130	
205	Tl	209	1.060	32913	1.40	1	106.0	70	130	
208	Pb	209	1.091	49226	0.60	1	109.1	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	778484	0.23	878942	88.57	70	120	
72	Ge	648416	0.41	708357	91.54	70	120	
115	In	7758341	1.16	8356167	92.85	70	120	
209	Bi	20172671	0.78	21610870	93.35	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/1/2014 16:55	Sample Name	CCB6-140801
Data Batch	140801.b	Comment	CCB ICPMS_TW
Data File Name	195_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	0.021	1	114.6	0.4	0.3	
11	B	45	-0.032	54	24.7	10	10	
23	Na	45	2.221	19009	0.8	50	100	
24	Mg	45	-1.504	226	10.5	50	100	
27	Al	45	-1.386	802	1.9	50	10	
39	K	45	10.291	26659	1.3	50	100	
44	Ca	45	3.485	330	8.1	50	100	
47	Ti	45	-0.044	2	173.2	4	3	
51	V	45	-0.402	1642	1.9	4	3	
52	Cr	45	-0.045	1920	6.5	2	2	
55	Mn	45	0.014	210	9.7	2	3	
56	Fe	45	0.691	18758	1.2	50	50	
59	Co	72	0.009	148	6.5	2	3	
60	Ni	72	0.016	693	14.8	2	3	
63	Cu	72	-0.056	543	9.3	2	2	
66	Zn	72	-0.101	286	6.4	4	2	
75	As	72	-0.002	112	3.6	2	2	
78	Se	72	0.246	35	8.3	1	2	
88	Sr	115	0.019	404	4.7	4	3	
95	Mo	115	-0.205	411	14.7	2	2	
107	Ag	115	0.009	174	4.0	0.4	1	
111	Cd	115	0.000	7	50.0	0.4	0.3	
118	Sn	115	-0.042	439	8.4	4	3	
121	Sb	115	0.030	277	21.9	2	0.8	
137	Ba	115	0.000	109	12.4	2	3	
205	Tl	209	0.018	1262	4.8	2	0.5	
208	Pb	209	0.028	5463	3.4	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	763191	0.42	878942	86.83	70	120	
72	Ge	632196	0.52	708357	89.25	70	120	
115	In	7732842	0.68	8356167	92.54	70	120	
209	Bi	20068446	0.57	21610870	92.86	70	120	

Method Blank Report

Date Acquired	8/1/14 4:57 PM	Sample Name	MB-64964
Data Batch	140801.b	Comment	MBLK6020A_S
Data File Name	196_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
9	Be	45	0.002	1	86.60		
11	B	45	-1.250	34	11.18		
23	Na	45	22.458	27701	2.15		
24	Mg	45	4.882	1587	6.74		
27	Al	45	-1.075	839	12.31		
39	K	45	23.913	30187	0.34		
44	Ca	45	25.371	681	9.37		
47	Ti	45	0.116	19	90.56		
51	V	45	-0.424	1579	10.70		
52	Cr	45	0.231	3098	2.67		
55	Mn	45	0.156	580	6.48		
56	Fe	45	4.437	33320	1.90		
59	Co	72	0.010	150	13.52		
60	Ni	72	0.188	1017	2.30		
63	Cu	72	0.014	897	5.90		
66	Zn	72	2.951	3497	6.71		
75	As	72	-0.001	112	18.69		
78	Se	72	0.156	30	18.74		
88	Sr	115	0.045	524	4.60		
95	Mo	115	-0.218	366	23.85		
107	Ag	115	0.010	191	5.33		
111	Cd	115	0.010	27	45.07		
118	Sn	115	4.048	16865	1.57		J
121	Sb	115	0.022	224	17.72		
137	Ba	115	0.036	186	23.44		
205	Tl	209	0.014	1117	6.27		
208	Pb	209	0.080	7602	1.10		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	769098	0.52	878942	87.50	70	120	
72	Ge	630106	0.19	708357	88.95	70	120	
115	In	7769000	1.42	8356167	92.97	70	120	
209	Bi	20088978	1.02	21610870	92.96	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	8/1/2014 16:59	Sample Name	LCS-64964
Data Batch	140801.b	Comment	LCS 6020A_S
Data File Name	197_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	178.584	6187	0.39	200	178.6	80	120	
11	B	45	179.912	3007	4.39	200	179.9	80	120	
23	Na	45	961.173	414649	0.32	1000	961.2	80	120	
24	Mg	45	959.725	200230	0.89	1000	959.7	80	120	
27	Al	45	967.549	92869	0.84	1000	967.5	80	120	
39	K	45	1035.845	270704	0.53	1000	1035.8	80	120	
44	Ca	45	1452.475	22892	0.62	1000	1452.5	80	120	Fail
47	Ti	45	210.701	21515	1.26	200	210.7	80	120	
51	V	45	206.109	702692	0.51	200	206.1	80	120	
52	Cr	45	208.838	861084	0.39	200	208.8	80	120	
55	Mn	45	207.644	524270	0.41	200	207.6	80	120	
56	Fe	45	1022.704	3863243	1.36	1000	1022.7	80	120	
59	Co	72	209.110	1426577	0.69	200	209.1	80	120	
60	Ni	72	201.231	376318	0.52	200	201.2	80	120	
63	Cu	72	203.541	1015324	0.32	200	203.5	80	120	
66	Zn	72	197.568	205185	0.49	200	197.6	80	120	
75	As	72	200.986	167745	0.42	200	201.0	80	120	
78	Se	72	203.639	12118	0.92	200	203.6	80	120	
88	Sr	115	196.334	883827	0.43	200	196.3	80	120	
95	Mo	115	192.425	690722	0.20	200	192.4	80	120	
107	Ag	115	203.843	2280334	2.19	200	203.8	80	120	
111	Cd	115	191.996	365005	0.18	200	192.0	80	120	
118	Sn	115	206.827	820246	0.58	200	206.8	80	120	
121	Sb	115	192.823	1212364	0.40	200	192.8	80	120	
137	Ba	115	202.692	431391	0.31	200	202.7	80	120	
205	Tl	209	204.630	5994386	1.07	200	204.6	80	120	
208	Pb	209	209.003	8297294	0.70	200	209.0	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	751857	0.32	878942	85.54	70	120	
72	Ge	620489	0.25	708357	87.60	70	120	
115	In	7666097	0.21	8356167	91.74	70	120	
209	Bi	19440663	0.08	21610870	89.96	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	8/1/2014 17:01	Sample Name	LCSD-64964
Data Batch	140801.b	Comment	LCSD6020A_S
Data File Name	198_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	179.173	6270	2.37	200	179.2	80	120	
11	B	45	177.929	3004	3.75	200	177.9	80	120	
23	Na	45	964.118	420033	0.45	1000	964.1	80	120	
24	Mg	45	964.973	203335	0.28	1000	965.0	80	120	
27	Al	45	980.485	95038	0.35	1000	980.5	80	120	
39	K	45	1042.640	275045	0.49	1000	1042.6	80	120	
44	Ca	45	1470.445	23405	1.52	1000	1470.4	80	120	Fail
47	Ti	45	210.591	21719	0.63	200	210.6	80	120	
51	V	45	208.506	717948	0.24	200	208.5	80	120	
52	Cr	45	211.594	881173	0.59	200	211.6	80	120	
55	Mn	45	210.030	535604	0.01	200	210.0	80	120	
56	Fe	45	1043.288	3979888	1.23	1000	1043.3	80	120	
59	Co	72	213.362	1462825	0.61	200	213.4	80	120	
60	Ni	72	204.494	384308	0.21	200	204.5	80	120	
63	Cu	72	205.703	1031176	0.64	200	205.7	80	120	
66	Zn	72	199.066	207764	0.36	200	199.1	80	120	
75	As	72	204.988	171931	0.24	200	205.0	80	120	
78	Se	72	206.046	12321	0.29	200	206.0	80	120	
88	Sr	115	202.388	899756	0.19	200	202.4	80	120	
95	Mo	115	199.011	705482	0.93	200	199.0	80	120	
107	Ag	115	206.025	2276296	1.99	200	206.0	80	120	
111	Cd	115	195.914	367834	0.58	200	195.9	80	120	
118	Sn	115	211.930	830028	0.18	200	211.9	80	120	
121	Sb	115	198.469	1232381	0.39	200	198.5	80	120	
137	Ba	115	208.770	438806	0.41	200	208.8	80	120	
205	Tl	209	206.166	6119156	1.28	200	206.2	80	120	
208	Pb	209	209.411	8423163	0.60	200	209.4	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	759389	0.48	878942	86.40	70	120	
72	Ge	623574	0.42	708357	88.03	70	120	
115	In	7571083	0.72	8356167	90.60	70	120	
209	Bi	19697426	0.56	21610870	91.15	70	120	

Dilution Sample (Dil) Report

Date Acquired	8/1/2014 17:06	Sample Name	1407279-28C SD
Data Batch	140801.b	Comment	SD 6020A_S
Data File Name	201_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
9	Be	45	0.619	23	4.35	2.2	138.1	110	90	
11	B	45	12.971	279	13.96	70.9	91.4	110	90	Good
23	Na	45	1678.557	742415	0.37	7991.2	105.0	110	90	Good
24	Mg	45	2702.408	587834	0.57	12551.5	107.7	110	90	Good
27	Al	45	13942.766	1384811	1.34	64596.1	107.9	110	90	Good
39	K	45	2206.149	574059	0.35	10979.3	100.5	110	90	Good
44	Ca	45	123502.678	2009157	0.60	577048.9	107.0	110	90	Good
47	Ti	45	32.101	3429	6.33	155.2	103.4	110	90	Good
51	V	45	31.418	114515	1.29	152.5	103.0	110	90	Good
52	Cr	45	24.174	106021	0.67	114.7	105.4	110	90	Good
55	Mn	45	82.358	217292	0.53	386.5	106.5	110	90	Good
56	Fe	45	11790.900	46343163	0.42	55669.6	105.9	110	90	Good
59	Co	72	3.876	27212	0.48	18.4	105.1	110	90	Good
60	Ni	72	11.241	22199	0.37	53.4	105.2	110	90	Good
63	Cu	72	6.394	33528	2.07	31.0	103.2	110	90	Good
66	Zn	72	36.556	39273	1.67	171.9	106.3	110	90	Good
75	As	72	5.360	4700	1.33	26.8	100.1	110	90	Good
78	Se	72	0.934	77	14.10	3.8	123.2	110	90	
88	Sr	115	278.918	1283587	0.45	1454.6	95.9	110	90	Good
95	Mo	115	0.496	2985	3.24	3.2	76.6	110	90	
107	Ag	115	0.015	251	6.81	0.0	175.5	110	90	
111	Cd	115	0.158	314	24.32	0.8	102.0	110	90	Good
118	Sn	115	1.106	5095	2.15	6.0	92.6	110	90	Good
121	Sb	115	0.093	683	4.70	0.4	108.7	110	90	Good
137	Ba	115	40.409	88020	0.74	200.9	100.6	110	90	Good
205	Tl	209	0.151	4994	1.92	0.7	111.6	110	90	
208	Pb	209	7.371	290591	0.46	36.3	101.4	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	785257	0.08	878942	89.34	70	120	
72	Ge	636588	0.38	708357	89.87	70	120	
115	In	7838323	1.20	8356167	93.80	70	120	
209	Bi	19046779	1.19	21610870	88.14	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	8/1/2014 17:26	Sample Name	1407279-28C PDS
Data Batch	140801.b	Comment	PDS 6020A_S
Data File Name	211_PDS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	164.106	5649	1.48	2.2	200	80.9	75	125	
11	B	45	233.271	3858	5.20	70.9	200	81.2	75	125	
23	Na	45	13271.466	5462397	1.75	7991.2	5000	105.6	75	125	
24	Mg	45	17757.354	3672455	2.17	12551.5	5000	104.1	75	125	
27	Al	45	70715.304	6678911	1.34	64596.1	5000	122.4	75	125	
39	K	45	16924.086	4031999	0.38	10979.3	5000	118.9	75	125	
44	Ca	45	########	9455964	0.78	577048.9	5000	679.6	75	125	Fail
47	Ti	45	361.406	36669	1.87	155.2	200	103.1	75	125	
51	V	45	356.664	1206093	0.28	152.5	200	102.1	75	125	
52	Cr	45	314.607	1287968	0.59	114.7	200	100.0	75	125	
55	Mn	45	624.955	1567644	0.55	386.5	200	119.2	75	125	
56	Fe	45	63255.862	236474737	0.74	55669.6	5000	151.7	75	125	Fail
59	Co	72	223.363	1451767	1.65	18.4	200	102.5	75	125	
60	Ni	72	239.695	426917	0.43	53.4	200	93.1	75	125	
63	Cu	72	215.219	1022737	0.45	31.0	200	92.1	75	125	
66	Zn	72	356.394	352319	0.39	171.9	200	92.2	75	125	
75	As	72	226.982	180465	0.31	26.8	200	100.1	75	125	
78	Se	72	203.612	11543	1.07	3.8	200	99.9	75	125	
88	Sr	115	1731.626	7292092	0.83	1454.6	200	138.5	75	125	Fail
95	Mo	115	191.239	642386	0.51	3.2	200	94.0	75	125	
107	Ag	115	214.117	2241414	3.05	0.0	200	107.0	75	125	
111	Cd	115	185.753	330484	0.58	0.8	200	92.5	75	125	
118	Sn	115	209.162	776246	0.26	6.0	200	101.6	75	125	
121	Sb	115	195.773	1151898	0.36	0.4	200	97.7	75	125	
137	Ba	115	409.479	815452	0.23	200.9	200	104.3	75	125	
205	Tl	209	206.356	5431437	1.00	0.7	200	102.8	75	125	
208	Pb	209	247.847	8839744	0.50	36.3	200	105.8	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	747148	1.09	878942	85.01	70	120	
72	Ge	591134	0.45	708357	83.45	70	120	
115	In	7175039	1.46	8356167	85.87	70	120	
209	Bi	17467229	0.58	21610870	80.83	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	8/1/2014 17:28	Sample Name	1407279-28C MS
Data Batch	140801.b	Comment	MS 6020A_S
Data File Name	212_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	158.208	5475	2.01	2.2	200	78.0	80	120	Fail
11	B	45	196.611	3277	8.14	70.9	200	62.8	80	120	Fail
23	Na	45	9020.565	3737278	1.28	7991.2	1000	102.9	80	120	
24	Mg	45	15088.360	3135893	0.91	12551.5	1000	253.7	80	120	Fail
27	Al	45	78922.648	7491394	1.44	64596.1	1000	1432.7	80	120	Fail
39	K	45	13196.846	3165226	1.55	10979.3	1000	221.8	80	120	Fail
44	Ca	45	########	9837103	0.39	577048.9	1000	5538.7	80	120	Fail
47	Ti	45	184.139	18779	3.72	155.2	200	14.5	80	120	Fail
51	V	45	354.692	1205546	0.51	152.5	200	101.1	80	120	
52	Cr	45	340.234	1399780	1.09	114.7	200	112.8	80	120	
55	Mn	45	602.390	1518716	1.88	386.5	200	107.9	80	120	
56	Fe	45	55643.152	209068778	0.22	55669.6	1000	-2.6	80	120	Fail
59	Co	72	201.353	1302028	0.24	18.4	200	91.5	80	120	
60	Ni	72	233.264	413371	0.49	53.4	200	89.9	80	120	
63	Cu	72	208.488	985746	0.72	31.0	200	88.8	80	120	
66	Zn	72	343.343	337711	0.46	171.9	200	85.7	80	120	
75	As	72	215.698	170626	0.21	26.8	200	94.5	80	120	
78	Se	72	199.343	11243	1.53	3.8	200	97.8	80	120	
88	Sr	115	1714.421	7198576	0.40	1454.6	200	129.9	80	120	Fail
95	Mo	115	163.470	547656	0.24	3.2	200	80.1	80	120	
107	Ag	115	183.539	1915684	0.37	0.0	200	91.7	80	120	
111	Cd	115	183.280	325102	0.21	0.8	200	91.3	80	120	
118	Sn	115	188.607	697963	0.41	6.0	200	91.3	80	120	
121	Sb	115	49.572	290877	0.27	0.4	200	24.6	80	120	Fail
137	Ba	115	517.106	1026728	0.40	200.9	200	158.1	80	120	Fail
205	Tl	209	202.435	5282080	1.23	0.7	200	100.9	80	120	
208	Pb	209	237.880	8411048	0.30	36.3	200	100.8	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	750885	0.28	878942	85.43	70	120	
72	Ge	588125	0.19	708357	83.03	70	120	
115	In	7152963	0.63	8356167	85.60	70	120	
209	Bi	17315907	0.21	21610870	80.13	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	8/1/2014 17:29	Sample Name	1407279-28C MSD
Data Batch	140801.b	Comment	MSD 6020A_S
Data File Name	213_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
9	Be	45	153.293	5288	1.79	2.2	200	75.5	80	120	Fail
11	B	45	176.246	2934	4.61	70.9	200	52.7	80	120	Fail
23	Na	45	8647.149	3572532	1.99	7991.2	1000	65.6	80	120	Fail
24	Mg	45	14226.800	2947898	0.47	12551.5	1000	167.5	80	120	Fail
27	Al	45	73292.860	6935801	0.18	64596.1	1000	869.7	80	120	Fail
39	K	45	12323.818	2948324	0.46	10979.3	1000	134.5	80	120	Fail
44	Ca	45	########	8555610	0.51	577048.9	1000	#####	80	120	Fail
47	Ti	45	174.238	17716	3.13	155.2	200	9.5	80	120	Fail
51	V	45	337.585	1144049	0.39	152.5	200	92.6	80	120	
52	Cr	45	310.244	1272673	0.14	114.7	200	97.8	80	120	
55	Mn	45	584.414	1468883	1.04	386.5	200	99.0	80	120	
56	Fe	45	52632.052	197151214	0.92	55669.6	1000	-303.8	80	120	Fail
59	Co	72	197.360	1286223	0.39	18.4	200	89.5	80	120	
60	Ni	72	222.647	397685	0.60	53.4	200	84.6	80	120	
63	Cu	72	199.339	949925	0.43	31.0	200	84.2	80	120	
66	Zn	72	328.333	325498	0.57	171.9	200	78.2	80	120	Fail
75	As	72	205.438	163792	0.51	26.8	200	89.3	80	120	
78	Se	72	191.774	10902	0.89	3.8	200	94.0	80	120	
88	Sr	115	1609.457	6796204	0.57	1454.6	200	77.4	80	120	Fail
95	Mo	115	157.191	529644	0.85	3.2	200	77.0	80	120	Fail
107	Ag	115	177.307	1861194	0.68	0.0	200	88.6	80	120	
111	Cd	115	174.078	310532	0.36	0.8	200	86.7	80	120	
118	Sn	115	182.570	679481	0.67	6.0	200	88.3	80	120	
121	Sb	115	48.695	287354	0.54	0.4	200	24.1	80	120	Fail
137	Ba	115	520.843	1040007	0.51	200.9	200	160.0	80	120	Fail
205	Tl	209	193.428	5068226	1.13	0.7	200	96.4	80	120	
208	Pb	209	229.428	8146668	1.12	36.3	200	96.5	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	748602	0.25	878942	85.17	70	120	
72	Ge	592744	0.32	708357	83.68	70	120	
115	In	7193567	0.57	8356167	86.09	70	120	
209	Bi	17389129	1.07	21610870	80.46	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/1/2014 17:55	Sample Name	CCV7-140801
Data Batch	140801.b	Comment	CCV ICPMS_TW
Data File Name	220_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	182.664	5859	1.56	200	91.3	90	110	
11	B	45	193.745	2994	5.88	200	96.9	90	110	
23	Na	45	4930.015	1900903	1.24	5000	98.6	90	110	
24	Mg	45	4848.470	934474	0.35	5000	97.0	90	110	
27	Al	45	4910.119	432848	0.88	5000	98.2	90	110	
39	K	45	5301.439	1191887	0.91	5000	106.0	90	110	
44	Ca	45	5064.187	73268	0.87	5000	101.3	90	110	
47	Ti	45	218.725	20678	1.98	200	109.4	90	110	
51	V	45	217.555	686536	0.73	200	108.8	90	110	
52	Cr	45	217.646	830754	1.01	200	108.8	90	110	
55	Mn	45	217.358	508082	0.92	200	108.7	90	110	
56	Fe	45	5229.917	18229479	0.70	5000	104.6	90	110	
59	Co	72	214.376	1363863	3.36	200	107.2	90	110	
60	Ni	72	208.758	364040	0.47	200	104.4	90	110	
63	Cu	72	210.716	980199	0.58	200	105.4	90	110	
66	Zn	72	203.922	197488	1.41	200	102.0	90	110	
75	As	72	212.665	165516	0.90	200	106.3	90	110	
78	Se	72	214.800	11919	0.83	200	107.4	90	110	
88	Sr	115	211.749	893924	0.54	200	105.9	90	110	
95	Mo	115	202.771	682533	0.80	200	101.4	90	110	
107	Ag	115	199.768	2095933	0.50	200	99.9	90	110	
111	Cd	115	201.067	358494	0.31	200	100.5	90	110	
118	Sn	115	214.236	796782	0.48	200	107.1	90	110	
121	Sb	115	195.617	1153455	0.55	200	97.8	90	110	
137	Ba	115	215.926	430983	0.26	200	108.0	90	110	
205	Tl	209	215.495	5916597	0.73	200	107.7	90	110	
208	Pb	209	219.759	8176684	0.36	200	109.9	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	696074	0.18	878942	79.19	70	120	
72	Ge	578642	0.29	708357	81.69	70	120	
115	In	7190314	1.14	8356167	86.05	70	120	
209	Bi	18220810	0.27	21610870	84.31	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/1/2014 17:59	Sample Name	LCVL7-140801
Data Batch	140801.b	Comment	LCVLICPMS_TW
Data File Name	222LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	1.208	40	30.31	1	120.8	70	130	
11	B	45	21.033	377	7.87	20	105.2	70	130	
23	Na	45	95.665	54035	1.17	100	95.7	70	130	
24	Mg	45	97.778	19688	2.06	100	97.8	70	130	
27	Al	45	98.102	9661	1.23	100	98.1	70	130	
39	K	45	119.896	49400	0.81	100	119.9	70	130	
44	Ca	45	99.804	1721	7.33	100	99.8	70	130	
47	Ti	45	5.729	558	1.24	5	114.6	70	130	
51	V	45	0.629	4829	0.49	1	62.9	70	130	Fail
52	Cr	45	5.425	23002	0.27	5	108.5	70	130	
55	Mn	45	5.333	12856	0.28	5	106.7	70	130	
56	Fe	45	99.975	369611	0.54	100	100.0	70	130	
59	Co	72	5.145	33516	1.10	5	102.9	70	130	
60	Ni	72	4.991	9497	1.72	5	99.8	70	130	
63	Cu	72	5.075	24871	2.22	5	101.5	70	130	
66	Zn	72	5.028	5332	0.69	5	100.6	70	130	
75	As	72	5.146	4195	0.62	5	102.9	70	130	
78	Se	72	5.638	338	6.28	5	112.8	70	130	
88	Sr	115	5.159	22239	1.22	5	103.2	70	130	
95	Mo	115	4.609	16687	3.90	5	92.2	70	130	
107	Ag	115	1.983	21035	2.20	2	99.1	70	130	
111	Cd	115	1.035	1867	4.73	1	103.5	70	130	
118	Sn	115	5.188	19994	2.69	5	103.8	70	130	
121	Sb	115	2.055	12292	2.00	2	102.8	70	130	
137	Ba	115	5.134	10425	2.10	5	102.7	70	130	
205	Tl	209	1.056	30053	1.23	1	105.6	70	130	
208	Pb	209	1.072	44379	0.63	1	107.2	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	708982	0.58	878942	80.66	70	120	
72	Ge	591183	0.81	708357	83.46	70	120	
115	In	7244762	0.52	8356167	86.70	70	120	
209	Bi	18475966	0.54	21610870	85.49	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/1/2014 18:03	Sample Name	CCB7-140801
Data Batch	140801.b	Comment	CCB ICPMS_TW
Data File Name	224_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	-0.006	0	173.2	0.4	0.3	
11	B	45	-0.205	48	33.0	10	10	
23	Na	45	2.569	17743	2.1	50	100	
24	Mg	45	-1.720	167	32.2	50	100	
27	Al	45	-1.135	766	7.4	50	10	
39	K	45	16.468	26080	2.0	50	100	
44	Ca	45	2.338	289	11.2	50	100	
47	Ti	45	-0.019	4	43.4	4	3	
51	V	45	-0.424	1452	5.7	4	3	
52	Cr	45	-0.011	1910	2.4	2	2	
55	Mn	45	0.019	208	13.5	2	3	
56	Fe	45	0.043	15085	2.0	50	50	
59	Co	72	0.013	163	13.4	2	3	
60	Ni	72	0.004	622	7.8	2	3	
63	Cu	72	-0.045	556	7.0	2	2	
66	Zn	72	-0.042	322	7.3	4	2	
75	As	72	0.021	122	11.6	2	2	
78	Se	72	0.186	29	12.0	1	2	
88	Sr	115	0.012	347	17.3	4	3	
95	Mo	115	-0.188	441	14.4	2	2	
107	Ag	115	0.013	212	6.3	0.4	1	
111	Cd	115	0.012	29	43.7	0.4	0.3	
118	Sn	115	-0.022	483	15.9	4	3	
121	Sb	115	0.027	241	19.8	2	0.8	
137	Ba	115	0.000	102	1.9	2	3	
205	Tl	209	0.025	1336	8.3	2	0.5	
208	Pb	209	0.025	4879	6.1	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	706964	0.08	878942	80.43	70	120	
72	Ge	586953	0.49	708357	82.86	70	120	
115	In	7203332	0.11	8356167	86.20	70	120	
209	Bi	18359751	0.33	21610870	84.96	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/1/2014 18:46	Sample Name	CCV8-140801
Data Batch	140801.b	Comment	CCV ICPMS_TW
Data File Name	243_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	181.000	5643	2.13	200	90.5	90	110	
11	B	45	178.870	2690	3.42	200	89.4	90	110	Fail
23	Na	45	4826.513	1809168	0.59	5000	96.5	90	110	
24	Mg	45	4834.058	905568	0.37	5000	96.7	90	110	
27	Al	45	4923.451	421840	1.13	5000	98.5	90	110	
39	K	45	5312.766	1160880	0.16	5000	106.3	90	110	
44	Ca	45	5112.900	71896	0.16	5000	102.3	90	110	
47	Ti	45	216.553	19898	0.20	200	108.3	90	110	
51	V	45	215.884	662171	0.07	200	107.9	90	110	
52	Cr	45	215.324	798850	0.17	200	107.7	90	110	
55	Mn	45	216.505	491891	0.51	200	108.3	90	110	
56	Fe	45	5238.553	17747279	0.14	5000	104.8	90	110	
59	Co	72	207.498	1279017	0.37	200	103.7	90	110	
60	Ni	72	206.993	349727	0.18	200	103.5	90	110	
63	Cu	72	207.865	936842	0.42	200	103.9	90	110	
66	Zn	72	203.746	191174	0.38	200	101.9	90	110	
75	As	72	213.823	161235	0.67	200	106.9	90	110	
78	Se	72	218.866	11766	1.93	200	109.4	90	110	
88	Sr	115	212.149	869153	0.69	200	106.1	90	110	
95	Mo	115	200.950	656441	0.64	200	100.5	90	110	
107	Ag	115	199.631	2032708	1.05	200	99.8	90	110	
111	Cd	115	199.918	345904	0.55	200	100.0	90	110	
118	Sn	115	213.678	771224	0.58	200	106.8	90	110	
121	Sb	115	195.336	1117770	0.66	200	97.7	90	110	
137	Ba	115	215.782	417971	0.36	200	107.9	90	110	
205	Tl	209	215.059	5761626	0.59	200	107.5	90	110	
208	Pb	209	218.185	7921643	0.72	200	109.1	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	676549	0.10	878942	76.97	70	120	
72	Ge	560621	0.20	708357	79.14	70	120	
115	In	6978106	1.27	8356167	83.51	70	120	
209	Bi	17780181	0.78	21610870	82.27	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/1/2014 18:51	Sample Name	LCVL8-140801
Data Batch	140801.b	Comment	LCVLICPMS_TW
Data File Name	245LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
9	Be	45	0.790	25	25.68	1	79.0	70	130	
11	B	45	17.447	309	4.36	20	87.2	70	130	
23	Na	45	93.854	51305	1.13	100	93.9	70	130	
24	Mg	45	96.545	18707	1.77	100	96.5	70	130	
27	Al	45	95.783	9093	4.44	100	95.8	70	130	
39	K	45	118.729	47269	0.45	100	118.7	70	130	
44	Ca	45	106.399	1749	10.83	100	106.4	70	130	
47	Ti	45	5.671	531	8.52	5	113.4	70	130	
51	V	45	0.655	4723	2.30	1	65.5	70	130	Fail
52	Cr	45	5.248	21465	2.12	5	105.0	70	130	
55	Mn	45	5.311	12315	2.03	5	106.2	70	130	
56	Fe	45	99.542	354075	0.51	100	99.5	70	130	
59	Co	72	5.055	31740	0.61	5	101.1	70	130	
60	Ni	72	5.060	9273	3.59	5	101.2	70	130	
63	Cu	72	5.101	24094	1.97	5	102.0	70	130	
66	Zn	72	5.069	5179	1.49	5	101.4	70	130	
75	As	72	5.143	4041	0.81	5	102.9	70	130	
78	Se	72	5.551	321	0.88	5	111.0	70	130	
88	Sr	115	5.124	21429	1.81	5	102.5	70	130	
95	Mo	115	4.519	15894	0.57	5	90.4	70	130	
107	Ag	115	1.958	20153	1.21	2	97.9	70	130	
111	Cd	115	1.041	1820	3.82	1	104.1	70	130	
118	Sn	115	5.140	19226	1.28	5	102.8	70	130	
121	Sb	115	2.030	11781	2.02	2	101.5	70	130	
137	Ba	115	5.163	10171	2.52	5	103.3	70	130	
205	Tl	209	1.041	28631	1.99	1	104.1	70	130	
208	Pb	209	1.067	42709	1.17	1	106.7	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	682009	0.34	878942	77.59	70	120	
72	Ge	569814	0.43	708357	80.44	70	120	
115	In	7028411	0.17	8356167	84.11	70	120	
209	Bi	17848203	1.03	21610870	82.59	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/1/2014 18:53	Sample Name	CCB8-140801
Data Batch	140801.b	Comment	CCB ICPMS_TW
Data File Name	246_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	45	-0.006	0	173.2	0.4	0.3	
11	B	45	0.716	60	14.7	10	10	
23	Na	45	0.441	16366	1.6	50	100	
24	Mg	45	-1.580	188	16.9	50	100	
27	Al	45	-1.567	703	4.6	50	10	
39	K	45	17.104	25371	2.2	50	100	
44	Ca	45	2.525	282	9.2	50	100	
47	Ti	45	0.055	11	45.8	4	3	
51	V	45	-0.431	1383	7.8	4	3	
52	Cr	45	-0.020	1816	6.3	2	2	
55	Mn	45	0.028	221	19.9	2	3	
56	Fe	45	0.004	14461	0.7	50	50	
59	Co	72	0.012	150	19.8	2	3	
60	Ni	72	0.004	602	5.9	2	3	
63	Cu	72	-0.047	528	0.7	2	2	
66	Zn	72	-0.092	264	20.5	4	2	
75	As	72	0.020	118	21.8	2	2	
78	Se	72	0.185	28	20.7	1	2	
88	Sr	115	0.013	341	19.8	4	3	
95	Mo	115	-0.162	513	12.2	2	2	
107	Ag	115	0.015	224	9.9	0.4	1	
111	Cd	115	0.006	18	60.3	0.4	0.3	
118	Sn	115	0.013	597	4.2	4	3	
121	Sb	115	0.035	281	10.1	2	0.8	
137	Ba	115	0.084	263	17.6	2	3	
205	Tl	209	0.022	1217	2.6	2	0.5	
208	Pb	209	0.033	5004	1.6	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	683971	0.54	878942	77.82	70	120	
72	Ge	567906	0.32	708357	80.17	70	120	
115	In	7012240	1.33	8356167	83.92	70	120	
209	Bi	17822165	0.69	21610870	82.47	70	120	

Appendix 3

Field Notes

1-21-14 ES14.AIRO.12 B. CAMACHO

Rockwool Belton, TX ES14.

705 mobilize from DBSA office to site..

0830 arrived onsite.

0835 conduct Heath and Safety Meeting.

0840 Decon water level meter

0850 Begin opening wells and gauging wells

— record of wells —

well ID	DTW (ft)	TD (ft)	Notes	Sampling order
MW-22	11.05	14.65	-	(1)
MW-20	31.63	39.18	-	(2)
MW-37-90	15.88	26.23	-	(3)
MW-21	9.77	15.77	-	(4)
MW-38-90	7.65	12.20	-	(5)
MW-35-90	14.96	17.25	-	(6)
MW-15	—	—	casing obstructed at 19.1 (silt?)	—
MW-16	DRY	31.48	Dry well	—
MW-11	32.48	35.51		(1)
MW-14	30.54	41.04		(2)
MW-10	27.36	35.52	ground below pad subsided.	(3)
MW-7	29.85	35.32		(4)
MW-19	31.74	33.99		(5)
MW-30-90	27.61	28.31		(6)
MW-24-90	32.65 BC	~~resistant to silt in well~~ TD	(well pad Damaged) TD = 40.62'	(7) L casing bent
MW-18	33.09	39.11	well cover/No broken/lock	(8)
MW-29-90	27.75	29.93		(9)

1/21/14

continued well record

well ID	DTW (ft)	TD (ft)	NOTES (So)
MW-27-90	33.80	35.31	(10)
MW-17	(Do Not use Data) 26.17	31.44	well casing bent (11)
MW-28-90	30.16 ~~BC~~	31.92 ~~BC~~ 1/21/14	(12)
MW-33-90	29.56 ~~BC~~ 1/21/14	32.94 ~~BC~~ 1/21/14	(13)
MW-34-90	28.42	32.46	(14)
MW-9	28.32	35.93	casing bent/subsidence under pad (15)

— site Photo Log —

1	facing South view of North property	17	MW-11 Sampling
2	→ North, view of North property	18	MW-14 Sampling
3	→ East, view of North property	19	MW-10 Sampling
4	MW-10 - ground subsided	20	MW-7 Sampling
5	MW-17 well casing bent	21	MW-19 Sampling
6	→ NW view of South facility	22	MW-30-90 Sampling
7	MW-24-90 well pad Damaged	23	MW-24-90 Sampling
8	MW-18 broken well cover	24	MW-18 Sampling
9	MW-17 bent well pad subsided	25	MW-29-90 Sampling
10	MW-33-90 bent well pad subsided	26	MW-27-90 Sampling
11	MW-22 Sampling	27	MW-17 Sampling
12	MW-20 Sampling	28	MW-28-90 Sampling
13	MW-37-90 Sampling	29	MW-33-90 Sampling
14	MW-21 Sampling	30	MW-34-90 Sampling
15	MW-38-90 Sampling	31	MW-9 Sampling
16	MW-35-90 Sampling	32	Drum inventory

1/21/14

(150)

ES14.AIRO.12 B.CAMACHO

Rock Wool Belton, Tx 1-21-14

1230 Break For lunch

1300 Set up at MW-22

1305 calibrate Horiba water quality meter

Auto cal solution Lot#1073 Exp 11/19/14

pH=4.01 ; cond = 4.50 ms/cm

Turb = 0.0 NTU DO = 9.45 mg/L

PI=13' btoc

1320 purging MW-22 ; Flow = 0.2 L/min

Time	°C temp	std pH	Mv ORP	ms/cm COND	NTU Turb	mg/L DO	ft DTW
1323	16.58	7.44	207	0.883	78.8	4.22	11.06
1326	16.53	7.06	196	0.785	85.5	3.59	11.06
1329	16.56	7.07	193	0.777	63.2	3.65	11.07
1332	16.57	7.06	197	0.776	72.8	3.81	11.07
1335	16.58	7.06	198	0.774	56.0	3.21	11.07
1338	16.59	7.06	200	0.772	30.9	3.23	11.07

1345 Sampled MW-22 PV 1/2 gallon

1345 collect MW-22 MS/MSD BC 1-21-14

1354 Deconing equipment

1400 Set up at MW-20

PI=35' btoc

1415 purging MW-20 ; flow rate = 0.2 L/min

Time	°C temp	std pH	Mv ORP	ms/cm cond	NTU Turb	mg/L DO	ft DTW
1420	19.05	8.69	139	1.08	19.2	1.97	31.64
1423	19.53	8.68	143	1.09	22.4	1.29	31.64
1426	19.68	8.69	142	1.11	12.6	1.21	31.65
1429	19.76	8.71	141	1.16	10.4	1.18	31.65
1432	19.81	8.71	139	1.18	8.8	1.17	31.65

1440 Sampled MW-20 1/2 gallon purge water

B.CAMACHO ES14.AIRO.12 1-21-14 (151)

Rockwool Belton Tx

1450 Set up at MW-37-90

PI = 22' btoc

1500 purging MW-37-90 Pump rate = 0.2 L/min

time	°C temp	std pH	Mv ORP	ms/cm cond	NTU Turb	mg/L DO	ft DTW
1510	20.71	8.02	-47	0.725	29.4	1.83	15.90
1513	20.82	8.36	-48	0.723	24.2	1.79	15.91
1516	20.81	8.62	-77	0.716	9.1	1.42	15.91
1519	20.73	8.78	-79	0.715	9.4	1.61	15.91
1522	20.74	8.76	-80	0.715	7.0	1.58	15.91
1525	20.75	8.80	-81	0.715	6.8	1.56	15.91

1530 Sampled MW-37-90 PV = 3/4 gallon

1540 Deconing equipment. Calibration check ok ✓

1600 Set up @ MW-21

PI: 31' btoc

1610 purging MW-21 pump rate = 0.2 L/min

time	°C temp	std pH	Mv ORP	ms/cm cond	NTU TURB	mg/L DO	ft DTW
1620	18.76	7.14	73	0.498	6.0	8.92	9.78
1623	18.81	7.06	72	0.494	5.4	8.87	9.79
1626	18.76	6.97	77	0.493	4.2	8.66	9.79
1629	18.65	6.96	81	0.492	2.6	8.64	9.79
1632	18.59	6.95	84	0.490	1.8	8.60	9.79
1635	18.56	6.94	88	0.491	1.6	8.57	9.79

1640 Sampled MW-21 ; collect 1640 MW-21 MS and MW-21 MSD / PV = 1 gallon.

1650 Deconing equipment

1-21-14

152

ES14.AiRO.12 1-21-14

Rockwool, Belton, TX B. CAMACHO

1700 set up at MW-38-90

1710 purging MW-38-90 PI: 10' btoc pump rate 0.2 L/min

Time	°C temp	std pH	mV ORP	ms/cm cond	NTU TURB	mg/L DO	ft DTW
1720	18.33	7.58	118	0.943	2.5	1.85	7.70
1723	18.32	7.61	116	0.946	2.0	1.78	7.71
1726	18.30	7.63	115	0.951	1.8	1.76	7.71
1729	18.31	7.64	113	0.957	0.6	1.74	7.71
1732	18.30	7.64	109	0.960	0.2	1.75	7.72
1735	18.29	7.64	107	0.962	0.7	1.76	7.72

1740 Sampled MW-38-90 PV= 1/2 gallon

1745 Deconing equipment

1755 set up at MW-35-90

1805 purging MW-35-90 PI: 16' btoc pump rate = 0.2 L/min

Time	°C temp	std pH	mV ORP	ms/cm COND	NTU TURB	mg/L DO	ft DTW
1815	19.59	~~7.68~~	~~146~~ BC 1-21-14	0.837	13.3	2.88	14.98
1818	19.91	7.65	151	0.834	13.0	2.53	14.99
1821	20.08	7.48	157	0.830	11.2	2.36	14.99
1824	19.96	7.40	160	0.827	9.8	2.28	15.00
1827	19.98	7.38	162	0.825	9.0	2.24	15.00
1830	19.98	7.36	164	0.823	8.4	2.20	15.00

1840 Sampled MW-35-90

1840 Collect Dup-1 at MW-35-90

Deconing equipment Purge volume = 1 gallon

1900 Collect equipment rinsate blank -> ~~ER-1~~ BC 1-21-14 ER-1

1930 packing, clean up

1945 left site

B. CAMACHO ES14. AiRO. 12 1-22-14

Rockwool, Belton, TX

153

0700 left office mob to site

0800 onsite. conduct Health and Safety meeting. Samplers are Ben Camacho & Marty Dunbar

0825 Calibrate Horiba #2

pH = 4.02 cond = 4.50 ms/cm

Turb = 0.0 NTU

Calibrate Horiba #1

pH = 4.01 cond = 4.53 ms/cm

Turb = 0.0 NTU

Lot # 10731

Exp BC = 11-19-20

Marty Dunbar to sample MW-29-90, MW-27-90, MW-17, MW-28-90, MW-33-90, MW-34-90 and MW-9 - see page 154

0910 set up at MW-11

0930 purging MW-11 PI = 34' btoc pump rate = 0.2 L/min

Time	°C temp	std pH	mV ORP	ms/cm cond	NTU TURB	mg/L DO	ft DTW
0933	18.46	6.67	+24	1.17	8.4	4.95	32.53
0936	18.52	6.80	-10	1.14	7.6	7.64	32.53
0939	18.36	6.82	-8	1.17	6.4	8.40	32.53
0942	18.40	6.84	-6	1.16	3.2	8.45	32.53
0945	18.49	6.86	-5	1.17	2.6	8.59	32.53

0950 Sampled MW-11, 1 1/2 gallon PV

1-22-14

154

Rockwool Belton, TX — B. CAMACHO
ES14.AIRO.12 1-22-14

1000 Decoming equipment
1010 help Marty Dunbar trouble shoot pump. Pump burned out. send Marty Dunbar offsite
1050 set up at MW-14 PI = 35' btoc pump rate = 0.2 L/min
1100 purging MW-14, PI = 35' btoc pump rate = 0.2 L/min

time	temp °C	pH std	ORP mV	cond ms/cm	Turb NTU	DO mg/L	DTW ft.
1103	20.05	8.61	132	0.917	46.4	7.64	30.56
1106	20.14	8.60	136	0.923	40.2	7.61	30.56
1109	20.16	8.60	140	0.926	20.4	7.58	30.56
1112	20.20	8.59	142	0.930	12.4	7.54	30.56
1115	20.18	8.59	140	0.931	8.6	7.53	30.56
1118	20.12	8.59	148	0.929	7.4	7.54	30.56

1125 Sampled MW-14 1/2 gal = PV
1130 Decoming Equipment
1135 set up @ MW-10
1140 purging MW-10 PI = 33' btoc pump rate = 0.2 L/min

time	temp °C	pH std	ORP mV	cond ms/cm	Turb NTU	DO mg/L	DTW ft
1143	19.18	7.65	190	1.01	8.4	12.30	27.36 [redacted]
1146	19.26	7.63	180	1.04	6.6	12.40	27.37 [redacted]
1149	19.32	7.60	177	1.08	5.0	12.44	27.37
1152	19.34	7.58	166	1.14	5.4	12.40	27.37
1155	19.40	7.55	164	1.26	4.8	12.36	27.37
1158	19.41	7.54	167	1.32	4.6	12.34	27.37
1201	19.43	7.53	165	1.34	6.0	12.32	27.37

1205 Sampled MW-10 1/2 gal = PV

ES14.AIRO.12 — B. CAMACHO
1-22-14 Rockwool, Belton TX — 155

1220 Break for lunch
1300 set up @ MW-7 4" diameter casing
1310 purging MW-7 PI = 33' btoc pump rate = 0.2 L/min

time	temp °C	pH std	ORP mV	cond ms/cm	Turb NTU	DO mg/L	DTW ft.
1313	20.14	6.96	152	0.849	12.6	4.40	29.87
1316	20.46	6.87	154	0.840	10.4	1.90	29.87
1319	20.52	6.74	147	0.832	11.6	4.67	29.88
1322	20.55	6.70	149	0.825	10.8	3.50	29.87
1325	20.47	6.66	150	0.826	9.8	3.45	29.87
1328	20.59	6.68	153	0.823	7.6	3.40	29.87
1331	20.65	6.66	154	0.827	7.0	3.38	29.87

1340 Sampled MW-7 1/2 gal = PV
Decoming equipment
1400 set up @ MW-19
1410 purging MW-19 PI = 32.5' btoc pump rate = 0.2 L/min

time	temp °C	pH std	ORP mV	cond ms/cm	Turb NTU	DO mg/L	DTW ft
1413	19.53	6.01	149	0.975	12.2	7.14	31.75
1416	19.86	6.23	159	0.968	14.6	7.30	31.75
1419	20.02	6.25	168	0.965	12.4	7.32	31.75
1422	20.09	6.27	172	0.963	9.4	7.39	31.75
1425	20.12	6.27	174	0.962	9.8	7.42	31.75
1428	20.04	6.28	172	0.962	8.6	7.45	31.75

1440 Sampled MW-19 1/2 gal = PV
Decoming Equipment.

1-22-14

Rockwool Belton TX

1500 set up @ MW-30-90

1510 purging MW-30-90 PI = 28' btoc pump rate = 0.74/min

Time	°C temp	STD pH	MV ORP	MS/cm COND	NTU TURB	mg/L DO	ft DTW
1513	21.72	7.92	155	0.736	290	7.61	27.62
1516	21.82	7.86	190	0.711	160	7.01	27.82
1519	22.06	7.77	220	0.725	150	6.47	27.94
1522	22.10	7.65	248	0.716	120	7.02	28.12
1525	22.13	7.43	226	0.701	140	~~X~~	well purged Dry.

— Allow well to recover

1550 collect sample w/ enough water volume.

Deconing Equipment

1600 set up at MW-24-90

1610 purging MW-24-90 P.I. = 36' btoc pump rate

Time	°C temp	STD pH	MV ORP	MS/cm COND	NTU TURB	mg/L DO	ft DTW
1613	21.96	6.87	130	1.50	15.6		32.65
1616	22.03	6.70	135	1.48	10.4		32.65
1619	22.60	6.75	138	1.45	12.2		32.65
1622	22.40	6.73	140	1.40	8.4		32.65
1625	22.35	6.71	142	1.49	6.0		32.65
1628	22.39	6.66	141	1.47	4.6		32.65
1631	22.33	6.68	143	1.45	3.8		32.65

1645 Sampled MW-24-90 1/2 gallon purge water

1655 Deconing equipment.

1-22-14

Rockwool Belton, TX

1700 set up at MW-18

1710 purging MW-18 P.I. = 36' btoc pump rate = 0.24/min

time	°C temp	STD pH	MV ORP	MS/cm COND	NTU TURB	mg/L DO	ft DTW
1713	21.36	6.40	42	1.113	40.4	1.96	23.1
1716	21.45	6.36	48	1.212	20.2	2.07	33.1
1719	21.68	6.32	39	1.196	12.4	2.13	33.1
1722	21.72	6.28	36	1.784	14.8	2.19	33.1
1725	21.75	6.27	38	1.765	9.6	2.24	33.1
1728	21.71	6.27	35	1.769	7.4	2.26	33.1

1740 Sampled MW-18 PV = 1/2 gallon

Deconing Equipment

1750 set up at MW-29-90

1800 purging MW-29-90 PI = 29.5' btoc pump rate = 0.2 L/min

time	°C temp	STD pH	MV ORP ↔	MS/cm COND	NTU TURB	mg/L DO	ft DTW
1803	21.45	7.01	1.432	16	102	1.56	27.85
1806	21.38	6.85	1.370	48	80.6	1.02	28.30
1809	21.42	6.74	1.361	102	40.4	2.12	28.45
1812	21.16	6.60	1.313	45	20.2	1.50	28.60
1815	21.18	6.55	1.258	68	29.8	1.30	No Data

1818 — ✱ well purged Dry ✱ —

1840 collect MW-29-90 allowed well to recharge. > 1/2 gallon PV / Note: turbidity High > 10 NTUs

Deconing Equipment

1900 collect ER-2. packing up & cleaning site

1930 left site.

1-22-14

1-23-14 ESI4, AIRO.12 B. CAMACHO

(158) Rockwool Belton, TX

0700 left office

0806 arrive onsite. conduct Health and Safety meeting. Scope Low flow sample remaining (6) wells. 10 mph NE winds, ± 36°F cloudy

0830 calibrating Horiba

Lot# 10731 Exp 11-19-2014

calibrate to 4, 02 pH ; ~~3.85~~ 4.26 ms/cm Bl 1-23-14

0,10 NTUs.

0900 set up at MW-27-90

0910 purging MW-27-90; PI = 34' btoc pump rate = 0.24 L/min

Time	°C temp	std pH	MV ORP	ms/cm COND	NTU TURB	mg/L DO	ft DTW
0913	18,64	6.97	202	1.54	30.4	4.86	water level below top of pump
0916	18,68	7.00	210	1,48	18.8	4.92	
0919	18,60	6.95	204	1.46	11.6	4,95	
0922	18,59	6.93	198	1,48	9.8	4,98	
0925	18,58	6.91	200	1.47	8.6	5.00	
0928	18,55	6.91	196	1,46	8.0	5.03	

0940 Sampled MW-27-90 ; 3/4 gallon PV

0950 Decoming pump

1000 set up @ MW-17 / Raining ≈ 32°F cloudy

1010 purging MW-17 PI = 29' btoc pump rate = 0.24 L/min

Time	°C temp	SU pH	MV ORP	ms/cm COND	NTU TURB	mg/L DO	ft DTW
1013	20.06	6.85	106	1,54	9.8	2,31	26.22
1016	19.96	6.83	110	1,55	9.0	2,46	26.34
1019	19.98	6.81	111	1,53	8.4	2.48	26.40
1022	19.90	6.79	114	1,89	8.6	2.50	26.44

cont.→

ESI4, AIRO.12 1-23-14

Rockwool Belton TX B. CAMACHO (159)

Time	°C temp	std pH	MV ORP	ms/cm COND	NTU TURB	mg/L DO	ft DTW
1025	19.95	6.78	126	1.86	10.4	2.53	26.47
1028	19.88	6.78	124	1.84	9.2	2.54	26.50

1040 Sampled MW-17 ; PV = 3/4 gallon

Decon equipment

1100 Set up @ MW-28-90

1110 purging MW-28-90 / PI = 31' btoc pump Rate =

time	°C temp	std pH	MV ORP	ms/cm COND	NTU TURB	mg/L DO	ft DTW
1113	19.75	6.95	220	1.13	6.8	6.55	water level below top of pump
1116	19.80	6.80	215	1.16	4.0	6.46	
1119	19.83	6.74	206	1.23	2.2	6.40	
1122	19.86	6.72	204	1.24	6.8	6.35	
1125	19.84	6.71	204	1,26	8.4	6.33	
1128	19.81	6.70	206	1,27	9.8	6.30	

1140 Sampled MW-28-90 / PV = 3/4 gallon

1150 Decon equipment

1200 set up @ MW-33-90

1210 purging MW-33-90 PI = 31.5' btoc pump ~~bottom~~ rate = 0.26 L/min 1-23-14

Time	°C temp	std pH	MV ORP	ms/cm COND	NTU TURB	mg/L DO	ft DTW
1213	19.66	6.95	140	1.113	44.8	4.62	29.56
1215	19.55	6.80	145	1.067	30.2	4.32	29.56
1218	19.60	6.77	148	1.052	28.6	4.50	29.56
1221	19.63	6.75	147	1.048	20.2	4.44	29.56
1225	19.64	6.75	146	1.045	15.4	4.40	29.56
1228	19.67	6.75	146	1.043	18.6	4.38	29.58

1240 Sampled MW-33-90 / PV = 3/4 gallon

1250 Decoming Equipment

1-23-14

ESI4.AIR0.12 — B.Camacho

(60) Rockwool Belton, TX 1-23-14

1300 Set up @ MW-34-90

1310 purging MW-34-90 / PI = 31' btoc pump rate = 0.26 L/min

Time	temp °C	pH std	mV ORP	ms/cm COND	NTU TURB	mg/L DO	ft. DTW
1313	19.46	7.11	122	0.843	90.6	9.86	28.43
1316	19.48	7.14	126	0.846	40.2	8.73	28.43
1319	19.51	7.20	130	0.845	30.6	8.11	28.43
1322	19.48	7.21	135	0.841	22.4	7.26	28.43
1325	19.46	7.22	140	0.843	14.2	7.13	28.43
1328	19.45	7.22	142	0.844	9.6	7.06	28.43

1340 Sampled MW-34-90 / PV = 3/4 gallon

* Dup-2 collected from MW-34-90

1350 Decoming Equipment

1400 set up at MW-9

1410 purging MW-9 / PI = 34' btoc pump rate = 0.27 L/min

time	temp	pH	ORP	COND	TURB	DO	DTW
1413	19.46	6.60	46.2	0.731	154	5.46	29.33
1416	19.40	6.65	96.3	0.739	120	5.55	28.33
1419	19.33	6.71	113	0.740	10.6	5.57	28.33
1422	19.32	6.73	612	0.740	9.4	5.60	28.33
1425	19.36	6.75	120	0.743	8.6	5.65	28.33
1428	19.40	6.76	1,22	0.744	7.2	5.68	28.33

1440 Sampled MW-9 / PV = 3/4 gallon

1450 Decoming Equipment

1500 Collect ER-3

1520 fill out Chain of custody COC# = COC# =

1530 cleaning up and packing equipment

1600 left site

Drum inventory = (1) full plastic 55-gal
(1) full steel 55-gal
(1) empty 55-gal steel

COC reference = DHL # 62151 and 62152

1-23-14

CURVE TABLES

HOW TO USE CURVE TABLES

Table I. contains Tangents and Externals to a 1° curve. Tan. and Ext. to any other radius may be found nearly enough, by dividing the Tan. or Ext. opposite the given Central Angle by the given degree of curve.

To find Deg. of Curve, having the Central Angle and Tangent: Divide Tan. opposite the given Central Angle by the given Tangent.

To find Deg. of Curve, having the Central Angle and External: Divide Ext. opposite the given Central Angle by the given External.

To find Nat. Tan. and Nat. Ex. Sec. for any angle by Table I.: Tan. or Ext. of twice the given angle divided by the radius of a 1° curve will be the Nat. Tan. or Nat. Ex. Sec.

EXAMPLE

Wanted a Curve with an Ext. of about 12 ft. Angle of Intersection or I. P. = 23° 20′ to the R. at Station 542 + 72.

Ext. in Tab. I opposite 23° 20′ = 120.87
120.87 ÷ 12 = 10.07. Say a 10° Curve.

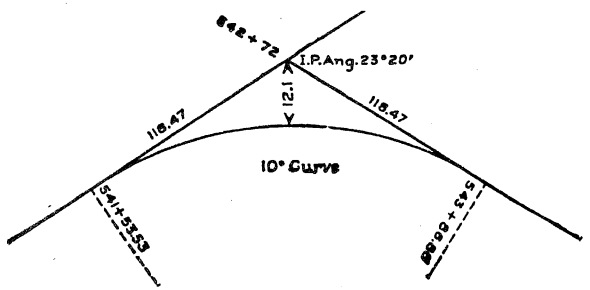
Tan. in Tab. I opp. 23° 20′ = 1183.1
1183.1 ÷ 10 = 118.31.

Correction for A. 23° 20′ for a 10° Cur. = 0.16
118.31 + 0.16 = 118.47 = corrected Tangent.

(If corrected Ext. is required find in same way)
Ang. 23° 20′ = 23.33° ÷ 10 = 2.3333 = L. C.

2° 19½′ = def. for sta.	542	I. P. = sta.	542 + 72
4° 49½′ = " " "	+ 50	Tan. =	1 .18.47
7° 19½′ = " " "	543	B. C. = sta.	541 + 53.53
9° 49½′ = " " "	+ 50	L. C. =	2 .33.33
11° 40′ = " " "	543 +	E. C. = Sta.	543 + 86.86
	86.86		

100 − 53.53 = 46.47 × 3′ (def. for 1 ft. of 10° Cur.) = 139.41′ =
2° 19½′ = def. for sta. 542.
Def. for 50 ft. = 2° 30′ for a 10° Curve.
Def. for 36.86 ft. = 1° 50½′ for a 10° Curve.



CONTENTS

PAGE NO.	REFERENCE	DATE
	TCEQ PM Marily Long	
	512-239-0761	
	City of Belton	
	254-721-3489	
well/	Gate Combo 3272	

ES14.AIR0.12 P. Kirby (1)
3/19/14 Rockwool B. CAMACHO

640 left DBSA Austin office
0745 onsite.. conduct Health and Safety
0755 setting up equipment. Decon equipment
0805 calibrating (3) Horiba water quality
#1 Autocal solution Lot# 10731
exp 11-19-2004
cal to pH 4.01 stu DO 9.19 mg/L
Turb 0.0 NTU
SC 4.48 ms/cm
#2 Autocal solution Lot# 10731
exp 11-20-14
cal to pH 4.02 stu
turb 0.0 NTU
SC 4.44 ms/cm
DO 10.11 mg/L
*Note all sampling data will be transcribed from individual field data sheets collected during this event.
0900 gauged MW-15 = dry well
1400 gauged MW-18 = dry well
1435 note: it appears there is a monitoring well adjacent the MW-53-90 on the neighboring property took photo #10 BC
1630 collect ER-1

(2) ES14.AIRO.12 B.CAMACHO P. Kirby
Rockwool 3-19-14

1635 returned to MW-28-90 to gauge well. ~~1~~ BC 3/19/14 0.2 feet of water recharged in well.

1700 collect sample at MW-28-90 using bailer (disposable)

←→ information Below was transferred from field notes documented by samplers Ben Camacho and Paul Kilby for wells sampled on 3-19-2014

↓BC

0830 set up at MW-22

	°C temp	SU pH	mS/cm SC	NTU TORB	mV EH	mg/L DO	ft DTW
0845	15.87	5.40	~~1.37~~ 1.46	14.0	260	~~9.16~~ 9.16	12.04
0848	16.00	5.67	~~1.40~~ 1.44 BC	16.6	243	~~6.64~~ 6.64	12.39
0851	15.87	5.70	1.41	17.2	237	~~6.17~~ 6.17	12.55
0854	15.67	5.73	1.40	23.9	234	~~6.05~~ 6.05	12.63
0857	15.63	5.72	1.40	23.5	235	~~6.02~~ 6.02	12.68

pump rate = 0.2 L/min, pump intake (PI) at 13' btoc; drawdown not stable

Purge volume (PV) 3.0L

0900 Sampled MW-22

Note: temperature and weather ranged from ~55°F, PC, winds 20 mph East to ~65°F PC, winds 10 mph NE

BC 3-19-14

ES14.AIRO.12 B.CAMACHO P. Kilby
Rockwool 3-19-14 (3)

0950 set up at MW-37-90.

	SU pH	°C temp	mS/cm SC	mV EH	mg/L DO	NTU Turb	ft. DTW
0957	5.67	17.37	1.32	174	2.11	26.4	18.40
1000	5.67	18.00	1.31	164	1.37	28.6	18.40
1003	5.67	17.96	1.31	162	1.20	19.8	18.41
1006	5.67	18.01	1.31	79	1.19	17.5	18.41
1009	5.66	18.06	1.31	69	1.22	9.8	18.41

pump rate = 0.2 L/min PI = 22' btoc PV = 2.0 L

1015 Sampled MW-37-90

Sample Notes: samples collected on 3-19-14 were collected using the following equipment: Horiba water quality meters, solinst water level meters, bladder pump for deep wells and geopump for shallow wells, 1/4" and 3/8" polyethylene tubing. bailers (disposable) were used if wells were purged dry.

1100 set up at MW-38-90, pump rate = 0.2 L/min

PI = 10.20 btoc PV = 3.6 L

	SU pH	°C temp	mS/cm SC	mV EH	mg/L DO	NTU Turb	ft DTW
1111	5.61	17.02	1.58	139	3.63	26.7	9.03
1114	5.73	17.07	1.59	142	2.88	25.2	9.05
1117	5.73	17.08	1.59	142	2.82	26.4	9.06
1120	5.73	17.07	1.60	144	2.31	23.1	9.06
1123	5.73	17.07	1.60	144	2.20	24.4	9.07
1126	5.73	17.08	1.61	144	2.18	18.7	9.07

1130 Sampled MW-38-90

BC 3-19-14

ES14.418.0.12 — B. Camacho, P. Kirby — 3-19-14

④ Rockwool

1135 set up at MW-35-90

pump rate = 0.2 L/min, PV = 3.0 L

PI = 178 ft btoc

	pH stdu	temp °C	cond ms/cm	ORP mV	DO mg/L	Turb NTU	DTW ft
1141	5.95	18.98	1.97	154	3.16	172	16.98
1144	5.79	18.66	1.98	167	1.86	201	17.10
1147	5.74	19.67	1.89	178	1.40	190	17.16
1150	5.67	19.68	1.89	194	0.96	187	17.20
1153	5.69	19.66	1.98	201	0.72	180	dry

Notes: well purged dry, very turbid, indication of silting. Wait 20 mins to recharge and collected sample.

1200 Sampled MW-35-90 DUP-1

collected @ MW-35-90

1025 set up at MW-21

	pH stdu	temp °C	cond ms/cm	ORP mV	DO mg/L	TURB NTU	DTW ft
1031	5.94	16.70	0.964	0.07	3.14	11.0	10.02
1034	5.70	16.95	0.949	-14	2.62	6.2	10.04
1037	5.67	17.91	0.947	-13	2.32	5.7	10.05
1040	5.67	17.00	0.944	-12	2.26	5.1	10.05
1043	5.67	17.01	0.939	-13	2.23	5.6	10.05

pump rate = 0.2 L/min PV = 3.0 L

PI = 12' btoc

1050 Sample MW-21

1050 collected MW-21 MS

1050 collected MW-21 MSD

3-19-14

ES14.418.0.12 — B. Camacho, P. Kirby — 3-19-14

Rockwool ⑤

1230 set up at MW-10; Pump Rate = 0.2 L/min

PV = 3.0 L PI = 25 ft btoc

	pH stdu	temp °C	cond ms/cm	ORP mV	DO mg/L	Turb NTU	DTW ft
1238	6.05	20.24	1.51	159	2.96	19.3	27.90
1241	5.80	20.34	1.46	-19	2.63	17.6	27.92
1244	5.74	20.35	1.46	-16	2.77	17.3	27.93
1247	5.75	20.31	1.46	-16	2.86	16.8	27.93
1250	5.75	20.35	1.45	-16	2.91	15.4	27.93

1300 Sampled MW-10

1305 set up at MW-30-90; PR = 0.2 L/min

PV = 0.6 L PI = 28' btoc

No Purge Data, well dry after 2 mins of pumping at a 0.2 L/min pump rate. Collecte sample with bailer after 20 mins of water recharge.

1320 Sampled MW-30-90

1330 set up at MW-29-90, PR = 0.2 L/min

PV = 3.0 L PI = 25.92 btoc

	pH stdu	temp °C	cond ms/cm	ORP mV	DO mg/L	Turb NTU	DTW ft
1336	6.24	20.18	1.79	198	1.86	54.4	29.00
1339	6.26	20.15	1.67	206	1.92	48.6	29.12
1342	6.27	20.21	1.60	189	1.90	30.4	29.20
1345	6.27	20.20	1.58	170	1.89	32.5	29.28
1348	6.27	20.20	1.56	175	1.88	37.6	29.30

1360 Sampled MW-29-90 unstable drawdowns

3-19-14

(6)

ES14.A1R0.12 B.Campbell P.Kirby
Rockwool 3-19-14

1400 Set up @ MW-17 ; PR= 0.2 L/min
PV = 3.0 L RT = 28.6 btoc

	pH stw	temp °C	sc mS/cm	eH mV	DO mg/L	TURB NTU	DTW ft btoc
1418	5.88	21.21	1.68	-21	3.18	13.9	27.20
1416	5.73	21.73	1.65	-14	2.23	10.2	27.24
1419	5.70	21.09	1.66	-13	2.16	9.4	27.25
1422	5.66	21.09	1.62	-12	2.21	6.8	27.25
1425	5.66	21.03	1.62	-11	2.29	5.4	27.25

1430 Sampled MW-17

1435 Set up at MW-33-90, PR= 0.2 L/min
PV = 3.0 L PI = 31' btoc

	pH stw	temp °C	sc mS/cm	eH mV	DO mg/L	TURB NTU	DTW ft btoc
1443	6.01	20.21	1.97	96	2.36	18.6	30.74
1446	5.99	20.23	1.84	49	1.90	17.4	30.86
1449	5.94	20.24	1.82	57	1.51	16.2	30.97
lowered pump to 32' btoc							
1452	5.91	20.24	1.80	60	1.77	15.4	31.40
1455	5.94	20.23	1.81	64	1.75	15.7	31.56

1505 Sampled MW-33-90

1510 Set up at MW-34-90, PR= 0.2 L/min
PV = 3.0 L PI = 31' btoc

	pH stw	temp °C	sc mS/cm	eH mV	DO mg/L	TURB NTU	DTW ft btoc
1523	6.10	20.32	1.65	32	1.36	36.2	30.01
1526	6.11	20.24	1.60	38	1.50	35.4	30.03
1529	6.12	20.23	1.61	40	1.57	37.6	30.04
1532	6.13	20.26	1.61	47	1.54	37.5	30.05
1535	6.14	20.28	1.60	45	1.66	36.9	30.05

1540 Sampled MW-34-90
* Collected DUP-2 *

B. Campbell 3-19-14

ES14.A1R0.12 B.Campbell P.Kirby 3-19-14
Rockwool (7)

↓ transferred from Paul Kirby's ↓
Sampling Logs.

0837 Set up at MW-20 PR= 370 mL/min
PV = 3/4 gal PI = 35.5' btoc

	pH stw	temp °C	sc mS/cm	eH mV	DO mg/L	TURB NTU	DTW ft btoc
0902	7.50	15.34	1.21	224	2.18	72.5	32.40
0905	7.56	15.85	1.20	193	1.69	61.9	32.42
0908	7.57	20.09	1.20	186	1.53	50.6	32.45
0911	7.54	20.21	1.20	178	1.36	37.4	32.50

0916 Sampled MW-20

0946 Set up at MW-11 PR= 240 mL/min
PV = 1/3 gal PI = 34' btoc
DTW below screen interval

	pH stw	temp °C	sc mS/cm	eH mV	DO mg/L	TURB NTU	DTW ft btoc
1002	7.64	18.09	1.30	-7	2.02	86	33.20
1005	7.72	19.60	1.29	2	1.48	48.9	34.70

Note: DTW below top of pump, cannot estimate appropriate drawdown rate. Collect grab sample before well is dry.

1014 Sampled MW-11

1042 Set up at MW-14, PR= 370 mL/min
PV = 1.0 gal PI = 36.2' btoc

	pH stw	temp °C	sc mS/cm	eH mV	DO mg/L	TURB NTU	DTW ft btoc
1051	7.68	19.99	1.14	140	4.50	77	36.73
1054	7.61	20.31	1.14	146	4.19	68	31.85
1057	7.58	20.42	1.13	150	4.19	37	31.36

1059 Sampled MW-14

3-19-14

ES14.AIRO.12 B.CAMACHO P.Kirby 3-19-14

(8) Rockwool

1132 set up at MW-7 ; PR = 370 mL/min
PV = 1.25 gal PI = 32.7' btoc

	pH stu	temp °C	sc ms/cm	eH mV	DO mg/L	turb NTU	DTW ft
1145	6.89	21.60	0.957	146	3.61	1.7	30.39
1148	7.39	22.41	0.937	151	2.28	6.8	30.49
1151	7.40	22.49	0.933	153	2.05	7.4	30.64
1154	7.40	22.51	0.934	154	1.89	7.3	30.85

1156 Sampled MW-7

1227 set up at MW-19 PR = 280 mL/min
PV = 2/3 gallon PI = 33' btoc

	pH stu	temp °C	sc ms/cm	eH mV	DO mg/L	turb NTU	DTW ft
1244	7.57	20.92	0.958	156	6.36	24	—
1247	7.67	20.98	0.959	155	3.73	12	—
1250	7.62	21.02	0.947	157	3.67	8	—

Note: DTW during pumping was below top of pump intake. DTW measurements not collected.

1252 Sampled MW-19

1310 set up at MW-24-90 PR = 270 mL/min
PV = 0.5 gal PI = 37' btoc

	pH stu	temp °C	sc ms/cm	eH mV	DO mg/L	turb NTU	DTW ft
1322	7.52	21.35	1.01	162	7.00	214	33.41
1325	7.48	21.42	1.01	164	6.76	133	33.41
1328	7.48	21.39	1.01	166	6.67	50	33.45

Note: water very turbid, water color is light brown.

1330 Sampled MW-24-90

3-19-14

ES14.AIRO.12 B.CAMACHO P.Kirby 3-19-14

(9) Rockwool

1358 set up at MW-18 ; PR = 290 mL/min
PV = 0.5 gal PI = 36.3' btoc

	pH stu	temp °C	sc ms/cm	eH mV	DO mg/L	turb NTU	DTW ft
1358							
1410	7.44	22.39	2.02	40	7.93	173	34.7
1413	7.36	22.38	2.01	39	6.43	238	—
1416	7.34	22.27	1.96	37	5.59	380	—

Note: water very turbid. DTW below top of pump. Cannot gauge drawdown

1419 Sampled MW-18

1433 set up at MW-27-90

Note: only 1.1' of water in well. bailed dry and sampled after recharge. bailed ≈ 1.5 gal of H_2O

1610 Sampled MW-27-90

1517 set up at MW-25-90 ; PR = 300 mL/min
PV = see note** PI = 31.1' btoc

	pH stu	temp °C	sc ms/cm	eH mV	DO mg/L	turb NTU	DTW ft
1525	7.33	21.64	1.11	67	8.72	54	—
1531	7.25	21.75	1.04	124	3.95	24	—
1534	6.85	21.77	1.06	130	3.27	22	—
1537	6.74	21.56	410	132	4.24	82	—*

*Note: pumped dry. Allow recharge. DTW below top of pump, cannot measure drawdown.

**See page 2 for notes and sample time for MW-24-90

3-19-14

1601 set up at MW-9, PR= 290 mL/min
PVC 1.0 gal PL= 32.4' btoc

	pH SU	temp °C	sc mS/cm	eH mV	DO mg/L	turb NTU	DTW ft
1611	7.66	21.99	0.867	145	2.07	19	28.80
1614	7.52	21.84	0.834	143	1.65	6	28.80
1617	7.37	21.64	0.819	145	2.91	3	28.80
1620	7.36	21.62	0.815	146	2.75	4	28.80
1623	7.36	21.60	0.813	148	2.96	3	28.80

1626 Sampled MW-9

— photo Log —

From Ben C. notes

photo #	Direction/description
1	MW-22 Sampling
2	MW-37-9 Sampling
3	MW-21 Sampling
4	MW-38-90 Sampling
5	MW-36-90 Sampling
6	MW-10 Sampling
7	MW-30-90 Sampling
8	MW-29-90 Sampling
9	MW-17 Sampling
10	See notes page 1
11	MW-34-90 Sampling
12,13,14,15,16	- view of cap.

BC 3-19-14

← photo Log continued

↓ - photos From Paul Kirby's Notes —

1. MW-20 sampling
2. MW-11 sampling
3. MW-14 Sampling
4. MW-7 Sampling
5. MW-19 Sampling
6. MW-24-90 Sampling
7. MW-18 Sampling
8. MW-27-90 Sampling
9. MW-28-90 Sampling
10. MW-9 sampling

Drum inventory: (2) Full drums (55 gal) of purge water (1) ~~Target~~ Bc. 55 gal drum 1/4 Full of purge water.

1700 packing, deconing, cleaning site, sampling equipment.

1800 left site

→ gauging information on page 12.

3-19-14

(12)

ESM. AFRO. 12 — B. CAMACHO, P. Kirby
Rockwool — 3-19-14

— well gauging Record —

	well ID	DTW	Sampling order
North Property	MW-22	11.38	1
	MW-20	31.97	2
	MW-37-90	18.16	3
	MW-21	9.73	4
	MW-38-90	8.68	5
	MW-35-90	16.59	6
Central Property	MW-11	32.59	1
	MW-14	31.37	2
	MW-10	27.61	3
	MW-7	30.09	4
	MW-19	32.11	5
	MW-30-90	27.67	6
	MW-24-90	33.19	7
	MW-18	33.45	8
	MW-29-90	~~27.92~~ 27.92	9
	MW-27-90	34.21	10
	MW-17	26.23	11
	MW-28-90	30.29	12
	MW-33-90	30.07	13
	MW-34-90	29.89	14
	MW-9	28.77	15

* MW-15 and MW-16 were dry.

3-19-14

ESM. AFRO. 12 — B. CAMACHO
Rockwool — 3-20-14

(13)

0700 filling out Chain of custody at Hotel. paperwork is also being completed.
0730 left beaton TX
0945 arrived at DTL analytical to drop off samples.
1030 arrived at ~~site~~ office

3-20-14

(14) Rockwool Industries, Inc. 4/ /14

ES14. AIR0.12-PK

0730 Paul Kirby (PK) for DBSA departs Austin for Belton. Mileage out is 33251.

0803 Arrive at site: Joss w/ Belton opened gate. Meet Francisco, Green Planet Driver for Drum pick up. Driver full name is Francisco Valencia.

0808 Drums loaded. PK takes photos

0811 Francisco w/ Green Planet departs site. PK locking gate. Green Planet removed two (2) full drums. One (1) partially filled drum left onsite for next event.

0815 Depart Belton for Austin.

0918 Arrive in Austin. Mileage is 33349.

ES14. AIR0.12 (15)

BC, GG, P.K Rockwool 5/21/14

651 left DBSA Austin

0800 onsite. conduct Health and safety meeting

0805 set up equipment. Decon equipment

810 Calibrating (2) Horiba water quality

#1 Auto Cal Solution

BC lot# 10954 Exp 04/16/2015

Cal to ph = 4.01 DO = 13.05

Turb = ~~4.50~~ 0.0 NTU

Sc = 4.50 ms/cm

PK #2 Cal to: pH = 4.00

Turb = 0.0

Sc = 4.49

DO = 12.96

Sample Notes: samples collected on 5/21/14 were collected using:

(2) Horibas (2) Solinist water levels

(1) bladder pump for deep wells

(1) peristaltic pump for shallow

disposable bailers used if well purged dry.

* All sampling data herein transcribed from individual field data sheets

5/21/14

(16) 5/21/14 ES14.AMRO.12 ROCKWOOL BC, PK, GK

well gauging record

well ID	DTW	Sample order
MW-15	DRY	—
MW-16	DRY	—
— North —		
MW-22	10.41	1
MW-20	32.04	2
MW-37-90	14.17	3
MW-21	8.98	4
MW-38-90	6.87	5
MW-35-90	13.79	6
— South —		
MW-11	33.6	1
MW-14	25.50	2
MW-10	27.02	3
MW-7	29.81	4
MW-19	32.08	5
MW-30-90	27.64	6
MW-24-90	33.34	7
MW-18	33.34	8
MW-29-90	27.73	9
MW-27-90	34.24	10
MW-17	26.21	11
MW-28-90	29.76	12
MW-33-90	29.68	13
MW-34-90	28.52	14
MW-9	28.36	15

(17) ROCKWOOL 5-21-14

BC, PK, CTG CS14.AMRO.12

0844 set up @ MW-22

	pH stu	temp °C	SC mS/cm	EH mV	DO mg/L	Turb NTU	DTW ft
0855	6.51	23.45	0.937	176	49.23	40.8	11.41
0858	6.67	23.36	0.900	167	4.52	25.9	11.42
0901	6.71	23.27	0.884	175	5.01	18.7	11.42
0904	6.72	23.28	0.832	176	5.07	25.2	11.43
0907	6.73	23.28	0.828	177	5.09	33.2	11.43

PR = 0.2 L/min PI = 12.5 btoc

PV = 3.0 L

0910 Sampled MW-22

930 set up @ MW-37-90

	pH stu	temp °C	SC mS/cm	EH ev	DO mg/L	TURB NTU	DTW ft
0941	6.7	24.07	0.924	162	1.53	9.8	14.17
0944	6.7	23.75	0.934	91	1.05	7.3	14.48
0947	6.69	23.58	0.938	21	0.85	7.4	14.52
0950	6.69	23.53	0.941	-4	0.80	5.5	14.56

0951 Sampled MW-37-90

PR = 0.2 L/min PI = 23' TOC

PV = 3.0 L

1000 set up @ MW-10

	pH stu	temp °C	SC mS/cm	EH mV	DO mg/L	turb NTU	DTW ft
1005	7.1	25.35	0.602	52	4.56	10.3	5.18
1008	6.59	24.51	0.543	79	1.83	5.3	9.27
1011	6.65	23.54	0.536	118	1.11	2.6	9.33
1014	6.69	23.64	0.535	122	0.99	2.3	9.51

PR= 0.2 L/min PI = 13' btoc PV = 2.4 liters

cont.

Rockwool 5-21-14 (18)

ES14, A1, R0.2 BC, PK, GG

1020 Sampled MW-21, MW-21 MS and MW-21 MSD

1030 Set up @ MW-38-90

	pH stu	temp °C	sc mS/cm	ORP mV	DO mg/L	Turb NTU	DTW ft
1036	6.77	26.92	0.892	153	4.33	7.9	8.85
1039	6.73	26.02	1.02	159	3.54	7.5	7.58
1042	6.73	25.14	1.03	156	3.63	1.3	7.61

PR = .2 L/min PV = 1.8 L

1044 PI = 10' btoc

1050 Sampled MW-38-90

Set up at MW-35-90

	pH stu	temp °C	sc mS/cm	ORP mV	DO mg/L	Turb NTU	DTW ft
1055	6.66	26.74	1.33	180	4.49	54.2	13.83
1058	6.87	25.84	1.36	142	3.53	26.8	13.95
1101	6.84	24.88	1.34	174	3.17	15.4	13.97
1104	6.85	24.53	1.40	173	3.16	8.2	13.44

1115 Sampled MW-35-90; DUP-1 taken

PR = .2 L/min PV = 2.4 L

PI = 14' btoc

1145 Set up at MW-10

	pH stu	temp °C	sc mS/cm	ORP mV	DO mg/L	Turb NTU	DTW ft
1150	4.61	26.38	0.850	159	4.64	18	28.01
1153	6.85	28.58	0.863	165	2.73	24.2	28.04
1156	6.79	28.32	0.850	167	2.84	19.2	28.06
1159	6.77	28.28	0.846	168	2.87	21.0	28.07

1200 Sampled MW-10

PR = .2 L/min PV = 2.4 L

PI = 28.5' btoc

Rockwool 5-21-14 (19)

PK, BC, GG ES14, A1, R0.2

1220 Set up at MW-30-90

*well purged dry after 3 mins of pumping at 0.2 L/min

bailed well for sample

after 30 mins of recharge, sample collected.

1220 Sampled MW-30-90

1230 set up @ MW-29-90

	pH stu	temp °C	sc mS/cm	ORP mV	DO mg/L	Turb NTU	DTW ft
1234	6.36	26.45	1.65	154	1.90	36.4	27.79
1239	6.38	26.53	1.66	179	1.88	25.9	27.84
1242	6.40	26.65	1.66	164	1.86	30.4	27.86
1245	6.41	26.70	1.67	160	1.84	38.7	27.89
1248	6.43	26.74	1.68	162	1.83	36.4	27.15

1250 Sampled MW-29-90

PR = 0.2 L/min PV = 3 Liters

PI = 28.50

1300 set up at MW-17

	pH	temp °C	sc	ORP	DO	Turb	DTW
1310	6.01	27.62	1.72	-14	2.96	15.6	26.94
1313	6.25	27.69	1.75	-11	2.88	9.9	26.97
1316	6.26	27.43	1.75	-13	2.84	7.4	26.99
1319	6.28	27.58	1.80	-16	2.83	8.5	27.01
1322	8.30	27.64	1.82	-20	2.90	8.9	27.04

1335 Sampled MW-17

PR = 0.2 L/min PV = 2.4 L

PI = 28 btoc

5-21-14 Rockwool

ES 14. AIR #: 12 BC, PK, GG

1340 Set up at MW-33-90

	pH (stu)	temp (°C)	sc (mS/cm)	eH (mV)	DO (mg/L)	Turb (NTU)	DTW (ft btoc)
1343	6.56	28.30	1.95	110	1.75	16.4	29.8
1346	6.60	28.32	1.90	95	1.60	14.2	29.4
1349	6.62	28.36	1.84	80	1.63	14.3	29.1
1352	6.65	28.39	1.80	88	1.59	20.2	29.1
1355	6.64	28.42	1.78	84	1.57	14.8	29.1

1410 Sampled MW-33-90

PR = 0.2 L/min PV = 3.0 Liters

PI = 31' btoc

1420 Set up at MW-34-90

	pH	temp	sc	eH	DO	Turb	DTW
1423	6.15	29.36	1.63	48	1.42	40.2	28.61
1426	6.22	28.40	1.59	46	1.39	29.6	28.65
1429	6.25	28.42	1.55	44	1.37	25.4	28.67
1432	6.30	28.39	1.54	41	1.39	30.1	28.69
1435	6.35	28.37	1.52	40	1.41	32.6	28.70

1450 * Sampled MW-34-90; Dup-2 Collected

1530 packing equipment cleaning up. will mob to PK for support.

5-21-14 Rockwool

ES 14. AIR #. 12 BC, PK, GG

1700 Collect ER-1 Equipment rinse blank.

↓ Notes transferred from PK ↓

0654 Set up at MW-20

	pH (stu)	temp (°C)	sc (mS/cm)	eH (mV)	DO (mg/L)	Turb (NTU)	DTW (ft btoc)
0915	6.31	22.81	1.24	216	3.76	126	32.5
0918	6.43	22.45	1.22	198	2.64	86.2	32.63
0921	6.45	22.22	1.22	192	2.20	97.6	32.68
0924	6.45	22.22	1.22	186	1.73	116	32.76

PR = 450 mL/min PV = 0.75 gal

PI = 35.5 btoc

0926 Sampled MW-20

0948 Set up at MW-11

	pH	temp	sc	eH	DO	Turb	DTW
1004	6.77	23.27	1.31	154	7.22	0.9	*
1007	6.76	22.98	1.32	133	4.91	2	*
1010	6.73	22.84	1.31	117	3.73	0	*

* DTW below top of pump / cannot measure

PR = 250 mL/min PV = 0.25 gal

PI = 34.5 btoc

1015 Sampled MW-11

1030 Set up at MW-14

	pH	temp	sc	eH	DO	Turb	DTW
1045	6.79	22.72	0.757	149	5.84	68.2	29.80
1048	6.74	22.46	0.730	152	5.63	44.2	29.90
1051	6.72	22.35	0.725	154	5.67	23	29.95
1054	6.71	22.49	0.725	156	5.97	10.7	30

PR = 350 mL/min PV = 1 gal

PI = 36.3 btoc

1056 Sampled MW-14

(22) Rockwool 5-21-14

ES14, AIR @ .12 Bc, Pk, Gr

1130 Set up at MW-7

	pH	temp	sc	eH	DO	Turb	DTW
1143	6.51	23.58	0.929	175	3.13	0	30
1146	6.47	23.32	0.951	175	3.51	0	29.97
1149	6.47	23.31	0.960	174	2.42	0	30
1152	6.46	23.32	0.960	164	2.52	0	29.98

PR = 360 mL/min PV = 1.25 gal

PI = 32.5 btoc

1154 Sampled MW-7

1243 Set up at MW-19

	pH	temp	sc	eH	DO	Turb	DTW
1225	6.63	24.72	1.02	167	4.45	2.7	*
1228	6.58	23.28	1.01	166	3.45	0.7	*
1231	6.67	22.74	0.982	166	3.61	2.7	*

* Depth to water below pump cannot measure

PR = 300 mL/min PV = 0.5 gal

PI = 33 btoc

1234 Sampled MW-19

1248 Set up at MW-24-90

	pH std	temp °C	sc mS/cm	eH mV	DO mg/L	turb NTU	DTW ft.
1300	6.60	22.42	1.03	170	4.21	57.2	33.57
1303	6.53	22.96	1.03	170	3.50	52	33.60
1306	6.51	22.62	1.03	168	3.08	35	33.62
1309	6.51	22.56	1.03	167	3.11	33.7	33.62

PR = 250 mL/min PV = 0.75 gal

PI = 37' btoc

1311 Sampled MW-24-90

(23) Rockwool 5-21-14

Bc, Pk, Gr ES14, AIR @ .12

1327 Set up at MW-18

	pH	temp	sc	eH	DO	Turb	DTW
1342	6.44	25.10	2.21	-58	1.54	97.2	34.03
1345	6.42	24.38	2.02	-31	3.01	179	35.01
1348	6.42	24.19	1.86	3	1.47	256	35.40
1351	6.42	24.15	1.80	14	1.61	285	35.57

PR = 250 mL/min PV = 0.75 gal

PI = 36.5' btoc

1356 Sampled MW-18

1412 Set up at MW-27-90

insufficient water volume to conduct low flow sampling. Hand bailed 1.5 gals.

1511 Sampled MW-27-90

1434 Set up at MW-28-90

	pH	temp	sc	eH	DO	Turb	DTW
1443	6.76	24.82	1.02	151	5.51	26.4	*
1446	6.72	23.88	0.93	152	4.93	46.5	*
1449	6.67	23.17	0.96	154	4.91	31.9	*
1452	6.65	23.05	0.92	157	4.97	29.9	*

* DTW below top of pump no drawdown data.

PR = 250 mL/min PV = 0.75 gal

PI = 31' btoc

1456 Sampled MW-28-90

Rockwool 5-21-14

(24) ES14.AIR0.12 DG, PK, GG

1520 set up MW-9

	pH SU	temp °C	sc mS/cm	eH mV	DO mg/L	Turb NTU	DTW ft
1531	6.65	25.11	0.850	162	4.79	3.7	28.38
1534	6.58	23.63	0.836	164	4.05	1.2	28.40
1537	6.54	23.32	0.828	165	3.91	0.0	28.41
1540	6.52	23.40	0.830	165	3.89	0.0	28.42

PR = 250 mL/min PV = 0.5 gal

PI = 32.2' btoc

1541 Sampled MW-9

1600 packing up, deconing equipment

1700 collect ER-1

1720 left site to Hotel.

Rockwool ~~5-21-14~~ 5-22-14 PK

(25) DG, PK, GG ES14.AIR0.12 5-22-14

0820 left Hotel Belton TX

0913 arrive at Dal lab in Round Rock TX. to deliver samples.

0930 leave lab

0943 arrive at office

Rockwool

(26) 7/22/14 ES14.A1RØ.12 BC, GG

0645 left site

0900 ...onsite... setting up and perform Health and safety plan review. ± 95°-100°F sunny, 3mphNE

420 calibrate (2) Horiba water quality Meters: Lot# 10959 exp: 4/16/15
#1 cal to 4.01 ph, DO= 18.88
Turb 0.0 NTU, 4.51 ms/cm
#2 cal to 4.00 ph DO= 12.26
Turb = 0.00 NTU, 4.49 ms/cm

Sample notes: samples collected on 7/22/14 were collected using
(2) Horiba water quality
(2) Solinst water level meters
(1) bladder pump for deep wells
(1) peristaltic pump for shallow wells.
* disposable bailers used if well purged dry or insufficient water in column.
* Sampling data transcribed from individual field data-sheets.

Rockwool

7/22/14 ES14.A1RØ.12 BC, GG (27)

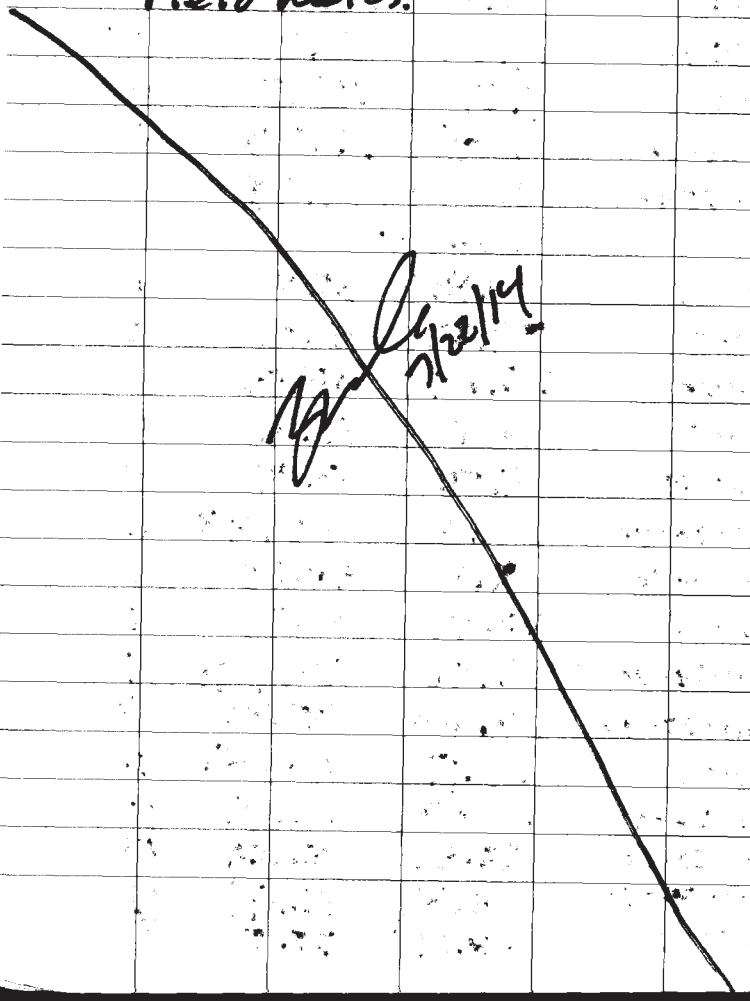
well gauging record

well ID	DTW	TD	photo # / Sample order
MW-15	Dry	—	—
MW-16	Dry	—	—
	- North -		
MW-22	10.68	14.57	1
MW-20	32.55	39.19	2
MW-37-90	14.09	26.26	3
MW-21	9.31	15.47	4
MW-38-90	7.14	12.23	5
MW-35-90	13.60	17.28	6
	- south -		
MW-11	34.57	35.51	1
MW-14	29.37	41.01	2
MW-10	27.09	35.58	3
MW-7	30.12	35.56	4
MW-19	31.54	33.99	5
MW-30-90	27.63	28.33	6
MW-24-90	32.35	40.68	7
MW-18	32.94	39.21	8
MW-29-90	27.80	29.96	9
MW-27-90	33.63	35.32	10
MW-17	26.17	31.47	11
MW-28-90	30.03	31.92	12
MW-33-90	29.54	32.99	13
MW-34-90	25.34	32.47	14
MW-9	28.21	33.92	15

(28)

Rockwool
ES14.AIR0.12 BC, GG

1830 Sampled CR-1
1900 packing up cleaning site.
1930 left site.
- END -
2100 - 2200 B.camach fill out chain of custody and transfer Field notes.



7/22/14

(29)

Rockwool
ES14.AIR0.12 BC, GG

- Field Notes From Ben Camacho -

0830 set up at MW-22

	pH	temp	sc	EH	DO	TURB	DTW
	stu	°C	m/cm	MV	mg/L	NTU	ft
0840	5.86	20.91	1.76	180	7.05	29.1	10.98
0843	5.84	20.88	1.70	195	6.96	16.4	11.01
0846	5.82	20.95	1.66	200	6.95	17.0	11.03
0849	5.80	20.93	1.65	204	6.93	15.6	11.07

PR = 0.2 L/min PI 12.5 btoc
PV= 3.0 L (Helped Grabe Contractor set up)

945 Sampled MW-22

1000 set up at MW-37-90

	pH	temp	sc	EH	DO	TURB	DTW
1010	6.3	21.65	0.677	56	1.41	20.4	14.15
1013	6.1	21.75	0.670	59	1.36	18.1	14.18
1016	6.2	21.60	0.681	64	1.33	12.2	14.20
1019	6.3	21.83	0.685	61	1.30	9.4	14.23

PR = 0.2 L/m PI = 23.1 btoc
PV = 3.0 L

1025 Sampled MW-37-90

1035 set up at MW-21 PR= 0.2 L/min PI = 10.6 btoc PV = 2 L

	pH	temp	sc	EH	DO	TURB	DTW
1045	6.66	22.45	1.45	90	2.54	12.4	9.47
1048	6.70	22.48	1.48	126	2.60	8.6	9.65
1051	6.74	22.51	1.51	131	2.65	7.4	9.80
1054	6.78	22.53	1.54	140	2.61	8.0	9.85

1100 Sampled MW-21, MS/MSD collected at MW-21

B

(30) ES14.AIR#.2 7/22/14
Rockwool BC,GG

1120 set up at MW-38-90

	pH	temp	sc	eH	DO	TURB	DTW
1127	6.70	21.86	1.21	118	2.40	30.4	7.21
1130	6.72	21.88	1.30	120	2.45	21.6	7.30
1133	6.72	21.93	1.39	122	2.49	15.5	7.35

PR= 0.2L/min PV= 2.0L

PI=14' btoc

1140 Sampled MW-38-90

1155 Set up at MW-35-90

t	pH	temp	sc	eH	DO	TURB	DTW
1210	6.66	23.40	2.01	130	2.90	19.4	13.76
1213	6.60	23.43	1.09	135	2.84	11.6	Khol.
1216	6.62	23.47	1.79	139	2.89	10.2	14.04
1219	6.65	23.49	1.71	141	2.94	9.4	14.07

PI=14.50' btoc PV= 3 L

PR= 0.2L/min

1230 Sampled MW-35-90 DUP-1 Collected

1250 Set up at MW-10

	pH	temp	sc	eH	DO	turb	DTW
1300	6.62	23.06	0.652	131	4.24	26.3	27.40
1303	6.60	23.45	0.560	120	4.31	22.4	27.90
1306	6.70	23.50	0.574	116	4.37	26.6	27.94
1309	6.74	23.54	0.579	115	4.40	20.4	27.97

PI= 29' btoc PV= 3.0L

PR= 0.2 L/m.

1330 Sampled MW-10

Rockwool 7/22/14
ES14.AIR#.17 BC,GG (31)

1420
1340 set up at MW-29-90

	pH	temp	sc	eH	DO	turb	DTW
1410	6.40	25.40	1.43	121	1.66	28.4	22.85
1423	6.43	25.43	1.46	124	1.64	24.4	22.93
1436	6.47	25.46	1.49	135	1.60	17.9	22.94
1454	6.49	25.49	1.52	134	1.58	14.2	22.85

PI= 29' btoc PR= 0.2 L/min

PV= 3 L

1450 Sampled MW-29-90.

1510 set up MW-30-90

insufficient water in column for pump. Bailed 3 well volumes.

1410 Sampled MW-30-90

1520 Set up at MW-17

	pH	temp	sc	eH	DO	turb	DTW
1510	6.31	24.00	1.41	0.16	2.06	17.0	26.94
1513	6.26	24.20	1.43	0.19	3.97	13.4	26.97
1516	6.20	24.21	1.44	0.24	3.40	9.6	26.99
1519	6.14	24.23	1.44	0.28	3.43	8.5	27.01

PI= 28' btoc PR= 0.2 L/min

PV= 3 L

1530 Sampled MW-17

Rockwool 7/22/14
ES.14.AIR#.12 BC, GG

(32)

1545 Set up at MW-33-90

	pH	temp	sc	eH	DO	TURB	DTW
1555	6.40	25.60	1.71	60	1.40	30	29.66
1558	6.38	25.40	1.73	65	1.52	22.4	29.70
1601	6.36	25.72	1.74	70	1.58	18.4	29.75
1604	6.34	25.75	1.77	74	1.56	16.6	29.79

PI 31.8' btoc PR = 0.2 L/min
PV = 3 L

1610 Sampled MW-33-90

1630 set up at MW-34-90

	pH	temp	sc	eH	DO	TURB	DTW
1640	6.26	24.50	1.43	28	1.21	16.0	28.60
1643	6.30	24.70	1.46	30	1.27	27.4	28.65
1646	6.31	24.75	1.50	40	1.30	17.4	28.70
1649	6.34	24.71	1.47	43	1.30	12.3	28.75

PI = 31' btoc PR = 0.2 L/min
PV = 3 L

1700 Sampled MW-34-90
DUP-2 Collected

Notes taken from Grabe Complex

0930 Set up at MW-20

	pH	temp	sc	eH	DO	TURB	DTW
0955	6.51	24.06	1.24	277	15.7		32.57
0959	6.48	23.64	1.23	2.44	11.1		32.58
1001	6.48	23.39	1.23	2.65	10.4		32.60

PI = 35' btoc PR = 0.2 L/min

1005 2.0 L removed
Sampled MW-20

Rockwool 7/22/14
ES.14.AIR#.12 BC, GG

(33)

1030 Set up at MW-9

	pH	temp	sc	eH	DO	eH/c	DO/sc	TURB	DTW
1105	6.61	24.58	1.06		4.36		0.847	11.3	28.44
1108	6.60	24.12	1.06		4.32		0.847	12.4	28.46
1111	6.60	24.08	1.05		4.29		0.847	11.8	28.48

PI = 32' btoc PR = 0.2 L/min
PV = 2 L

1116 Sampled MW-9

1140 set up at MW-11
well purged dry, water column = 1', let well recharge
used bailer to collect sample
No water quality data

1226 Sampled MW-11

1240 set up at MW-14

	pH	temp	sc	eH	DO	TURB	DTW
1305	6.79	26.98	0.947	87	6.43	467	29.97
1311	6.70	25.96	0.942	92	6.04	129	30.06
1314	6.67	24.60	0.941	94	6.09	119	30.13

PI = 35' btoc PR = 0.2 L/min
PV = 2 L

1325 Sampled MW-14

(34) Rockwool 7/22/14
ES14.A1.R0.12 BC, GG

1340 Set up at MW-7

	pH	temp	sc	eH	DO	TURB	DTW
1403	6.64	29.22	0.983	110	3.03	10.2	30.54
1406	6.61	29.07	0.970	113	2.97	9.0	30.60
1409	6.60	29.07	0.964	116	2.92	8.4	30.65

PI = 33' btoc PR = 0.2 L/min
PV = 2 L

1415 Sampled MW-7

1425 Set up at MW-19

	pH	temp	sc	eH	DO	TURB	DTW
1443	6.57	29.09	1.14	127	3.72	17.2	31.61
1446	6.54	29.62	1.21	126	3.65	16.8	31.62
1449	6.65	29.44	1.11	123	3.54	16.3	31.64

PI = 32.5' btoc PR = 0.2 L/min
PV = 2 L

1500 Sampled MW-19

1505 Set up at MW-24-90

	pH	temp	sc	eH	DO	Turb	DTW
1510	6.69	27.33	1.05	115	3.83	16.9	32.41
1513	6.66	26.85	1.05	113	3.59	17.3	32.42
1516	6.65	26.44	1.05	112	3.64	17.3	32.44

PI = 36' btoc PR = 0.2 L/min
PV = 2 L

1520 Sampled MW-24-90

Rockwool 7/22/14
ES14.A1.R0.12 BC, GG (35)

1540 Set up at MW-18

	pH	temp	sc	eH	DO	TURB	DTW
1551	6.64	27.15	1.02	107	4.72	28.1	32.96
1554	6.65	26.42	1.04	108	4.66	27.4	32.97
1557	6.61	26.47	1.03	107	4.54	27.2	32.97

PI = 34' btoc PR = 0.2 L/M
PV = 2 L

1603 Sampled MW-18

1610 Set up at MW-27-90
well purged dry, let well recharge, use bailer to sample

1625 Sampled MW-27-90

1635 Set up at MW-28-90

	pH	temp	sc	eH	DO	Turb	DTW
1643	6.88	27.92	1.11	109	5.62	14.7	30.28
1646	6.72	27.69	1.12	108	5.44	12.2	30.28
1649	6.71	27.45	1.12	108	5.39	12.0	30.30

PI = 31' btoc PR = 0.2 L/min
PV = 2.0 L

1655 Sampled MW-24-90

(36) Rockwool 7/27/14
ES14.AIRØ.12 BC, GG

0800 onsite, Begin staking and laying assumed northern Fence boundary on middle property.
1030 spoke to utility locater. locator said the fenceline is clear of the natural gas pipeline. pipline is Active.
1100 Billy Gamblin and Marylin Young TCEQ arrive onsite.
1300 depart site for lunch meeting and meeting with City of Belton.
1400 meeting with city of Belton
1530 leave meeting head to lab to delive water samples
1630 arrive at lab.
1700 leave lab and drive to office
1730 leave office after demob equipment.

7/28/14
ES14.AIRO.24 BC, GG (37)

0700 leave Austin office
0800 arrived on site; perform Health & safety plan ≈ 95°-100°F sunny
0930 - walked site with SunBelt contractor & City of Belton workers
1000 - walked fence perimeter w/ fencing contractor
1100 fencing contractors begin measuring distance of fence "Note: two (2) additional "H" braces needed for small property
1330 - contractors started laying out fence posts
1430 - contractors started putting in fence posts. Having delays bc of rocky ged.
1700 - fence contractors and GG leave site for the day. Contractor going to McCoys to get concrete drill