

Semi-Annual Operations & Maintenance Report

**Rockwool Industries, Inc.
Federal Superfund Site
1741 Taylors Valley Road
Belton, Bell County, Texas**

Prepared for

Texas Commission on Environmental Quality

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Prepared By:

**Paul B. Kirby, P.G.
Mid-level Scientist**



Daniel B. Stephens & Associates, Inc.

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



Table of Contents

Section	Page
1. Executive Summary	1
2. Introduction	2
2.1 Project Background	2
2.2 Project Objectives.....	3
3. Site Inspections.....	5
3.1 Field Inspection	5
3.2 MATCON Containment Cell Inspection	6
3.2.1 MATCON Cover	6
3.2.2 MATCON Perimeter Integrity and Drainage	6
4. Groundwater Monitoring.....	6
4.1 Groundwater Level Measurement	7
4.2 Groundwater Sampling Methods	7
4.3 Groundwater Sample Analysis	8
4.4 Quality Assurance/Quality Control Samples.....	9
4.4.1 Field Duplicate Samples.....	9
4.4.2 Equipment Rinsate Blank Samples	9
4.4.3 Temperature Blank Samples	10
4.5 Investigative Derived Waste	10
5. Groundwater Analysis	10
5.1 Groundwater Analytical Results	10
5.2 Quality Assurance/Quality Control Sample Results	12
5.2.1 Field Duplicate Samples.....	12
5.2.2 Equipment Rinsate Blank Samples	13
5.2.3 Temperature Blank Samples	13
5.3 Data Review & Validation	13
6. Discussion of Findings and Conclusions.....	14
7. Recommendations	15
8. References	16



List of Tables

Table 1	Summary of Groundwater Analytical Results
Table 2	Water Level Measurements and Groundwater Elevation Data

List of Figures

Figure 1	Site Location Map
Figure 2	Site Map
Figure 3	Potentiometric Surface Elevations

List of Appendices

Appendix 1-A	Site Inspection Photographic Documentation
Appendix 1-B	Groundwater Monitoring Photographic Documentation
Appendix 2	Data Review & Validation Memoranda and Laboratory Analytical Reports
Appendix 3	Field Notes



Semi-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. 1 to the April 26, 2011 Field Sampling Plan (FSP1). 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 twenty-three (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 all monitoring wells, evaluation of the condition and integrity of each monitoring well, and field measurement of groundwater in each monitoring well for pH, dissolved oxygen, conductivity, temperature, and oxidation-reduction potential.

Other O&M activities conducted at the RWI Site include a general inspection of the site, monitor wells, well head protection devices, articulated concrete blocks (ACBs), drainage features, landfill components, and a MATCON Containment Cell Inspection and Assessment in accordance with the TCEQ-approved FSP1.

The following semi-annual O&M report documents the aforementioned completed groundwater monitoring and O&M site activities and presents the field data and photographic documentation as collected, the updated site maps and groundwater surface contour maps, the laboratory results of groundwater sample analysis and respective data tables, including data review and



validation memoranda, a discussion of the findings and conclusions, and provides recommendations for future O&M 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 Rockwool Industries, Inc. 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 shown 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. Such 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 all areas of the RWI Site.

Additionally, stabilization and protection of the Leon River bank was accomplished utilizing ACBs and the evaporation lagoon infrastructure consisting primarily of PVC piping was 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 remedial design or action, 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 and O&M activities approved in a TCEQ Remediation Division work order (No. 248-0058) for the RWI Site. The O&M 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).

All O&M activities described in this report were performed by DBS&A under the TCEQ Assessment, Investigation and Remediation Services (AIRS) Contract (No. 582-10-91051) and in accordance with the February 11, 2011 Rockwool Industries, Inc. Superfund Site Operations & Maintenance Plan (DBS&A, Feb 2011); the June 14, 2012 Addendum No. 1 to the April 26, 2011 Rockwool Industries, Inc. Federal Superfund Site Field Sampling Plan (FSP1) for Operations & Maintenance Activities (DBS&A, June 2012); the applicable TCEQ Superfund Program Standard Operating Procedures (SOPs); and the TCEQ Quality Assurance Project Plan for the Federal Superfund Program (Revision 8.0, Q-TRAK# 11-483) (TCEQ, 2011).



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 FSP1 are 6 µg/L for antimony, 10 µg/L for arsenic, and 5 µg/L for lead (DBS&A, 2012). The sample measurement performance criteria for analytical data generation and acquisition are specified in Group B of the TCEQ Federal Superfund Program QAPP (Revision 8.0, Q-TRAK# 11-483) (TCEQ, 2011).

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 post-closure care of commercial industrial non-hazardous waste landfill facilities per 30 TAC §335.593 and the applicable provisions of 30 TAC §330.254(b).

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. Inspection and maintenance of the MATCON Cover will be conducted by the governing regulatory agency.

Surface water drainage controls shall 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.



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. Site Inspections

3.1 Field Inspection

On July 10, 2012 DBS&A conducted inspections of the drainage and erosion prevention devices located at the RWI Site. Photographs from this inspection can be found in Appendix 1-A and field notes from this inspection can be found in Appendix 3. At the time of the inspection, the City of Belton had not conducted any mowing at the RWI Site and the heavy vegetation growth hindered the inspection at some points and is noted in the field notes. Overall, drainages are competent, berms appear to be in good condition, ACB integrity is good, and drainage pipe inlets and outlets are generally clear of debris with minor debris noted in the inlet next to the concrete plant. Some specific items of note are that there is no fence evident along the east side of the North Property, a well-worn foot path exists from the cemetery property onto the North Property (east of cemetery) and down to a fishing spot on the RWI Site property, new fencing is evident between the cemetery and concrete plant but doesn't extend to the Leon River, and new fencing has been erected next to the parking lot on the south side of the North Property and around the stockpile yard of the fiberglass company.



3.2 MATCON Containment Cell Inspection

On July 10, 2012 DBS&A conducted an inspection of the MATCON containment cell. Photographs from this inspection can be found in Appendix 1-A and field notes from this inspection can be found in Appendix 3. At the time of the inspection, the City of Belton had not conducted any mowing at the RWI Site and the heavy vegetation growth hindered the inspection at some points and is noted in the field notes.

3.2.1 MATCON Cover

Significant surface cracks are evident and concentrated along the seams of the asphalt with the southern half of the cover having significantly more cracks than the northern half. Some of the cracks observed were up to 3/4" wide and appeared to extend several inches down in depth. Older, patched cracks have reopened. Some vegetation has taken root in some of the cracks in the cover and ponding of water was evident on the cover in places.

3.2.2 MATCON Perimeter Integrity and Drainage

The north edge of the cell is cracked approximately 2'-3' from the edge with significant vegetation growth. Drainage along the north edge appears competent but the inspection was hindered by heavy vegetation which may be clogging drainage pathways. Mesquite trees have established themselves along the perimeter. East and west edges are similar to the north with varying amounts and types of vegetation. The south edge is similar to the north edge, but with cracking extending up to 10' down the apron and salt cedars instead of mesquite. Overall, patching along the apron/perimeter has held up better than on the cover proper, but is still compromised in several locations.

4. Groundwater Monitoring

On July 10-11, 2012 DBS&A conducted semi-annual groundwater monitoring activities at the RWI Site. Tabular data, including groundwater level measurements and laboratory analytical results, collected during the July 2012 groundwater monitoring event are located in Table 1 (Summary of Groundwater Analytical Results) and Table 2 (Water Level Measurements and Groundwater Elevation Data) of this report. Laboratory analytical data reports, including the



data review and data validation memoranda, are located in Appendix 2 of this report. Figure 3 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 2012 semi-annual groundwater monitoring event. Photographic documentation collected during the groundwater monitoring event is provided in Appendix 1-B of this report.

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 June 14, 2012 Addendum No. 1 to the April 26, 2011 Rockwool Industries, Inc. Federal Superfund Site Field Sampling Plan (FSP1) for Operations & Maintenance Activities (DBS&A, June 2012); the applicable TCEQ Superfund Program Standard Operating Procedures (SOPs); and the TCEQ Quality Assurance Project Plan for the Federal Superfund Program (Revision 8.0, Q-TRAK# 11-483) (TCEQ, 2011).

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 all 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.

4.2 Groundwater Sampling Methods

A Horiba model U-22XD 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 as documented on page 42 of the field notes.

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 FSP1 (DBS&A, June 2012) and the methodology described in the applicable TCEQ Superfund Program SOPs. All samples were submitted to DHL Analytical for inorganic metals (arsenic, antimony, and lead) analysis using EPA SW-846 Method 6020A.

4.3 Groundwater Sample Analysis

A completed chain-of-custody for twenty-three (23) groundwater samples collected from the RWI Site on July 10-11, 2012 was submitted to DHL Analytical on July 11, 2012 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 Texas Commission on Environmental Quality (Certificate No. T104704211-12-8).

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 not collected as specified in the Federal Superfund QAPP and in the FSP. This error is also noted in Section 11 “Corrective Actions and Workplan Deviations” of the Date Usability Summary (DUS) completed by the independent data reviewer. This error prevented any bias analysis of the sample matrix.

4.4 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 July 2012 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 5 (Analytical Results) of this report.

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 2012 groundwater monitoring event, field duplicates were collected from monitoring wells MW-21 (DUP-1) and MW-34-90 (DUP-2), as per FSP1.

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 FSP1, one equipment rinsate blank per equipment type per medium per day was collected when non-dedicated sampling equipment was used. Two equipment rinsate blanks were collected during



the July 2012 sampling event. ER-1 was collected on July 10th and ER-2 was collected on July 11th.

4.4.3 Temperature Blank Samples

A temperature blank demonstrates that the environmental samples have been properly preserved at the required temperature ($\leq 6^{\circ}\text{C}$) until receipt at the laboratory. A temperature blank for the July 2012 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.

4.5 Investigative Derived Waste

All investigative derived waste (IDW), including purged groundwater fluids and decontamination wastewater recovered during the July 2012 groundwater monitoring activities, was managed according to TCEQ Superfund Program SOP No. 1.4. Purged groundwater and decontamination wastewater is stored on-site in three (3) chemically compatible 55-gallon drums. Characterization and disposal of IDW purge water will be handled by a subcontractor. 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.

5. Groundwater Analysis

Discussion of the laboratory analytical results for the July 10-11, 2012 groundwater monitoring event 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.

5.1 Groundwater Analytical Results

Analytical results from groundwater samples collected from the RWI Site monitor wells were compared to the human health Preliminary Remediation Goals (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 FSP1 are 6 µg/L for antimony, 10 µg/L for arsenic, and 5 µg/L for lead (DBS&A, June 2012).

Table 5.1 (Summary of PRG Exceedances) below presents the analytical data results for groundwater samples collected from the RWI Site monitor wells in July 2012 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 2012 of antimony is 0.526 mg/L found in MW-35-90 and the maximum concentration of arsenic is 0.391 mg/L found in MW-34-90. The concentration of arsenic in DUP-2 at 0.378 mg/L, which is the field duplicate of MW-34-90, is the next highest analyzed concentration. The highest concentration of lead for July 2012 is 0.0113 mg/L found in both MW-30-90 and MW-35-90, and are the only samples collected from the monitor wells that exhibit a concentration above the PRG.



Table 5.1 - Summary of PRG Exceedances

Sample ID	Lab Sample ID	Sample Date	Antimony (mg/L)	Arsenic (mg/L)	Lead (mg/L)
MW-9	1207088-02	7/10/2012	0.249	0.081	<0.000300
MW-17	1207088-05	7/10/2012	0.00828	0.00595	0.000705 J
MW-21	1207088-17	7/11/2012	0.303	0.00921	0.00267
DUP-1 (MW-21)	1207088-22	7/11/2012	0.428	0.00545	0.00100
MW-27-90	1207088-08	7/11/2012	0.0717	<0.00200	0.00048 J
MW-28-90	1207088-09	7/11/2012	0.0299	0.0689	0.000735 J
MW-29-90	1207088-10	7/11/2012	0.0283	0.00503	0.002310
MW-30-90	1207088-11	7/11/2012	0.00116 J	0.00269 J	0.0113
MW-33-90	1207088-12	7/10/2012	0.159	0.0312	<0.000300
MW-34-90	1207088-13	7/10/2012	0.323	0.391	<0.000300
DUP-2 (MW-34-90)	1207088-14	7/10/2012	0.318	0.378	<0.000300
MW-35-90	1207088-19	7/11/2012	0.526	0.0904	0.0113
MW-37-90	1207088-20	7/11/2012	0.00105 J	0.0325	<0.000300
MW-38-90	1207088-21	7/11/2012	0.131	0.00681	0.00354
Preliminary Remediation Goals (mg/L)			0.006	0.010	0.005

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

5.2 Quality Assurance/Quality Control Sample Results

Laboratory analytical results of the QA/QC samples collected during the July 2012 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.

5.2.1 Field Duplicate Samples

Field duplicates were collected from monitoring wells MW-21 and MW-34-90 during the July 2012 groundwater monitoring event and respectively labeled as DUP-1 and DUP-2 for confidentiality purposes. The calculated relative percent differences (RPD) between the MW-21 primary sample and the field duplicate (DUP-1) are 34.2% for antimony, 51.3% for arsenic, and 91.01% for lead. The calculated relative percent differences (RPD) between the MW-34-90 primary sample and the field duplicate (DUP-2) are 1.56% for antimony and 3.38% 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). Each of the above calculated RPD values for MW-21 and DUP-1 were greater than the 30% criterion established in the TCEQ Quality Assurance Project Plan for the Federal Superfund Program (Revision 8.0, Q-TRAK# 11-483) (TCEQ, 2011); 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.

5.2.2 Equipment Rinsate Blank Samples

Two equipment rinsate blank samples (ER-1 and ER-2) were collected during the July 2012 sampling event. Analytical results for the equipment rinsate blank samples indicate that none of the COCs were identified in either of the blank samples above the sample detection limits. Therefore, the equipment decontamination procedures performed during this groundwater monitoring event are deemed effective.

5.2.3 Temperature Blank Samples

The temperature of the collected groundwater samples was reported by DHL Analytical to be 3.7°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.

5.3 Data Review & Validation

The independent data usability review for the July 2012 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 or rejected data. The data reviewer did identify that samples 1207088-17/22 (MW-21/DUP-1) did not meet the field duplicate review criteria. 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 Data Usability Summary (DUS) located in Appendix 2. The following corrective action was noted by the data reviewer in Section 11 of the DUS:



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 QAPP and in the TCEQ Superfund Program SOP No. 6.5 (Collection of QA/QC Samples). Additionally, the field team will ensure that sufficient samples volume is collected for the laboratory to perform the MS/MSD QC sample analysis on this project specific sample.

6. Discussion of Findings and Conclusions

Operation and maintenance activities were performed at the Rockwool Industries, Inc. Federal Superfund Site in order to ensure that the selected remedy remains protective of human health and the environment. As a result of the continued performance of inspection and maintenance activities at the RWI Site, the underground culverts, drainage features and erosion control measures, including the articulated concrete blocks along the Leon River bank, appear to be preventing the migration of contaminated soil and/or waste into the Leon River through surface water runoff and erosion. In addition, the soil and vegetation covers at the site appear to be preventative of direct human and wildlife contact and exposure with the contaminants of concern, which include antimony, arsenic, and lead. However, the numerous cracks in the MATCON as well as the vegetation growing in the cracks and on the apron are a significant cause and concern about the integrity of the cell may be compromised. Vegetation on the MATCON cover and apron should be removed and the MATCON and apron repaired/resealed. MATCON drainage areas around the perimeter, retention basin, and to FM 93 should have vegetation removed and filter fabric and riprap rock placed in them to deter vegetative growth and erosion.

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) 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 event indicate that the contaminants of concern, especially antimony and arsenic, continue to impact groundwater above the established Preliminary Remediation Goals as a result of contaminant leaching and migration from the subsurface soil and waste located across the RWI site.

7. Recommendations

Based on the results obtained from the 2012 O&M activities described in this report, DBS&A recommends the continued inspection and maintenance of the Rockwool Industries, Inc. Federal Superfund Site on a semi-annual basis. DBS&A recommends continued and more frequent groundwater monitoring to establish a trend of chemical concentrations, the repair of damaged/missing perimeter fences, aggressive vegetation eradication work to allow for drainage controls to operate properly and to allow for thorough inspections, re-sealing/repair of the MATCON and its apron.



8. References

- Daniel B. Stephens & Associates, Inc. February 2011. *Operations & Maintenance Plan*. Rockwool Industries, Inc. Superfund Site, Bell County, Texas.
- Daniel B. Stephens & Associates, Inc. June 2012. *Addendum No. 1 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. 2011. *Quality Assurance Project Plan for the Federal Superfund Program Revision 8.0*, Q-TRAK# 11-483.
- U.S. Environmental Protection Agency (EPA). September 2004. *Superfund Record of Decision (ROD)*. Rockwool Industries, Inc., Bell County, Texas.

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			
	1207088-01	7/10/2012	0.00153	J	0.0008	0.0025	<0.00200	0.002	0.005	0.00069	J			
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			
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		
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			
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		
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		
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
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	0.0008	0.0025	0.00921	0.002	0.005	0.00267	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	0.0008	0.0025	0.00545	0.002	0.005	0.00100	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)
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
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
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
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
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
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
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
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
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
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
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



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)
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
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
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

Notes:

Values in **bold** indicate results above PRGs.

PRGs = Preliminary Remediation Goals

SDL = Sample Detection Limit

MQL = Method Quantitation Limit, adjusted for moisture and sample size

J = Estimated result /analyte detected between SDL and MQL



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)	Groundwater Surface Elevation (ft)	Top of Limestone Elevation (ft)
MW-7	10358000.55	3201475.37	521.23	5/2/2011	30.40	490.83	491.8
				7/10/2012	30.35	490.88	
MW-9	10357733.35	3201552.67	518.86	5/2/2011	28.99	489.87	486.5
				7/10/2012	28.77	490.09	
MW-10	10357635.35	3201683.33	518.45	5/2/2011	27.59	490.86	489.3
				7/10/2012	27.55	490.90	
MW-11	10357652.64	3201805.07	519.37	5/2/2011	28.23	491.14	491.6
				7/10/2012	31.06	488.31	
MW-14	10357199.82	3202218.05	514.02	5/2/2011	DRY	---	477.5
				7/10/2012	DRY	---	
MW-15	10358936.41	3202230.39	506.49	5/2/2011	DRY	---	488.0
				7/10/2012	Casing obstructed at 19.2'		
MW-16	10357985.96	3202227.94	519.22	5/2/2011	DRY	---	485.7
				7/10/2012	DRY	---	
MW-17	10357494.71	3201976.57	518.18	5/2/2011	26.26	491.92	491.1
				7/10/2012	26.23	491.95	
MW-19	10357815.89	3202478.34	520.31	5/2/2011	32.64	487.67	487.5
				7/11/2012	31.98	488.33	
MW-20	10358596.28	3202126.66	519.70	5/2/2011	32.26	487.44	No well log
				7/11/2012	31.77	487.93	
MW-21	10358526.27	3202730.33	505.11	5/2/2011	10.92	494.19	No well log
				7/11/2012	9.98	495.13	
MW-22	10358587.03	3202646.56	505.18	5/2/2011	11.37	493.81	No well log
				7/11/2012	11.94	493.24	
MW-24-90	10357535.22	3202554.55	518.46	5/2/2011	33.81	484.65	No well log
				7/11/2012	32.82	485.64	
MW-27-90	10358240.31	3202111.37	519.76	5/2/2011	34.49	485.27	487.2
				7/11/2012	33.92	485.84	



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)	Groundwater Surface Elevation (ft)	Top of Limestone Elevation (ft)
MW-28-90	10358377.38	3201743.14	519.84	5/2/2011	30.45	489.39	491.9
				7/11/2012	30.38	489.46	
MW-29-90	10358223.82	3201524.01	517.56	5/2/2011	27.91	489.65	491.8
				7/11/2012	27.91	489.65	
MW-30-90	10357873.98	3202043.34	520.17	5/2/2011	27.74	492.43	491.4
				7/11/2012	27.74	492.43	
MW-33-90	10357865.25	3201459.31	520.25	5/2/2011	30.32	489.93	488.4
				7/10/2012	30.11	490.14	
MW-34-90	10357611.50	3201589.38	519.12	5/2/2011	29.09	490.03	487.9
				7/10/2012	28.89	490.23	
MW-35-90	10358825.67	3202797.17	501.03	5/2/2011	16.61	484.42	No well log
				7/11/2012	16.23	484.80	
MW-36-90	10358815.08	3202843.96	501.96	5/2/2011	Casing obstructed at 2.5'	No well log	
				7/11/2012	Casing plugged		
MW-37-90	10358806.57	3202888.58	501.52	5/2/2011	18.67	482.85	No well log
				7/11/2012	17.96	483.56	
MW-38-90	10358674.78	3202942.28	504.05	5/2/2011	10.15	493.90	No well log
				7/11/2012	9.89	494.16	

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-18, MW-23, MW-25-90, MW-26-90 and MW-32-90 were previously abandoned.

Figures



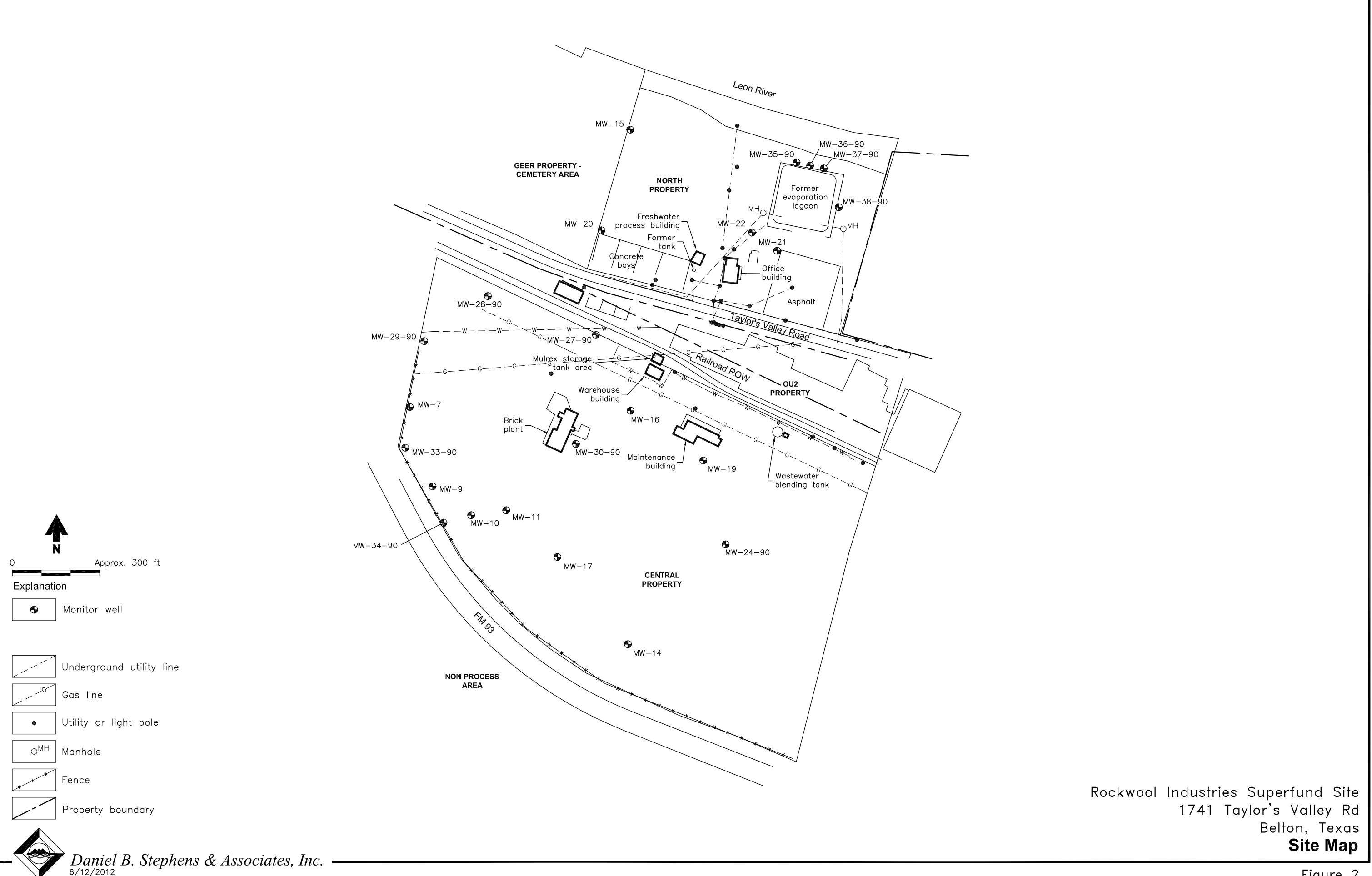
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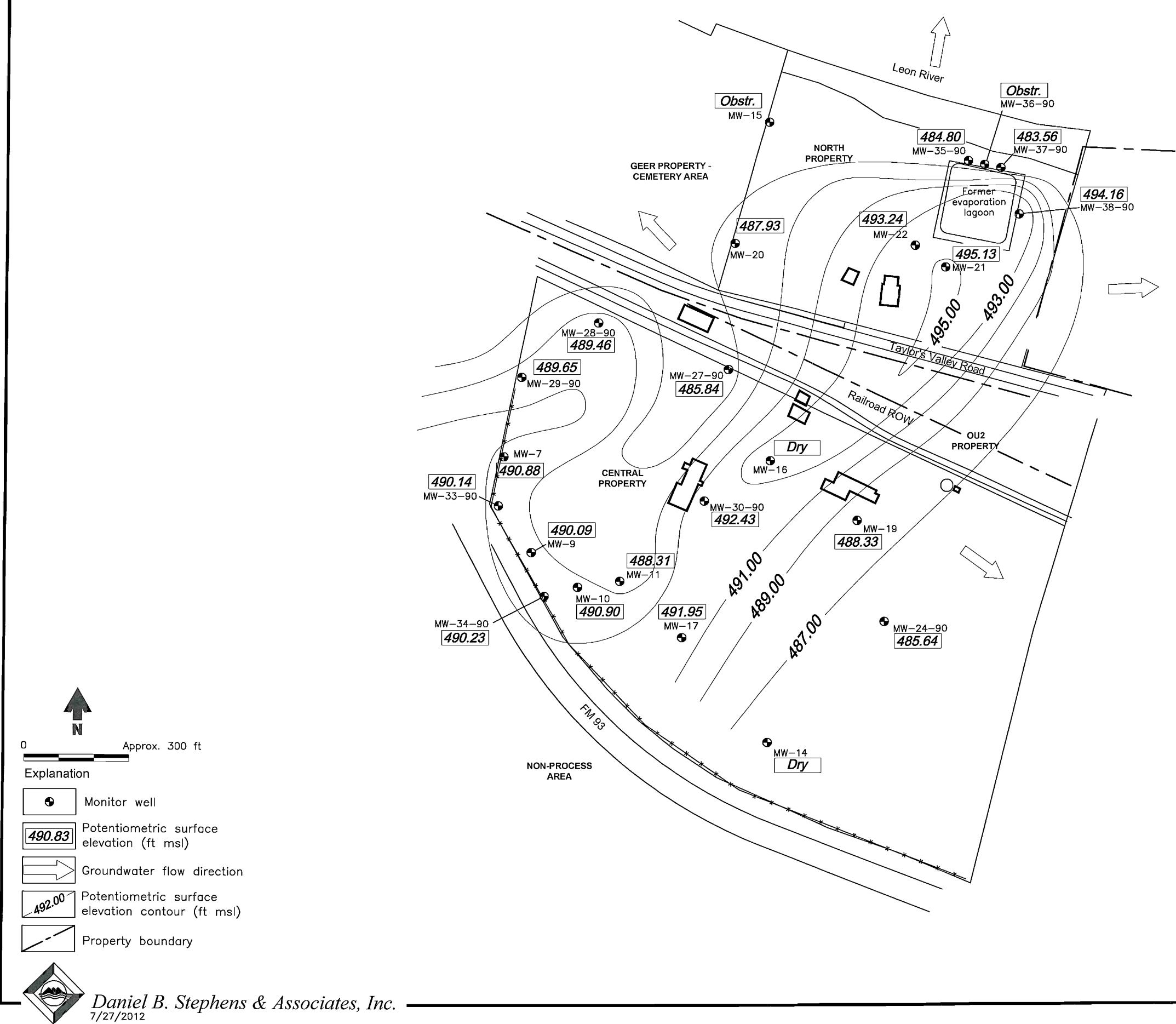
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2010 Color Aerial Imagery Courtesy Google Earth

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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





Rockwool Industries Superfund Site
1741 Taylor's Valley Rd
Belton, Texas
Potentiometric Surface Elevations
July 10-11, 2012



Daniel B. Stephens & Associates, Inc.
7/27/2012

Figure 3

Appendix 1-A

Site Inspection Photographic Documentation



Daniel B. Stephens & Associates, Inc.



Photo #1
Date: July 10, 2012
Description: Looking West at Crack Development in MATCON Cover.



Photo #2
Date: July 10, 2012
Description: Looking East at Crack Development in MATCON Cover.



Daniel B. Stephens & Associates, Inc.



Photo #3

Date: July 10, 2012

Description: Looking Northeast at Water
Ponding on the on the MATCON Cover.



Photo #4

Date: July 10, 2012

Description: Looking East at Crack
Development in MATCON Cover.



Daniel B. Stephens & Associates, Inc.



Photo #5
Date: July 10, 2012
Description: Looking South at Crack Development in MATCON Cover.



Photo #6
Date: July 10, 2012
Description: Looking East at Crack Development in MATCON Cover.



Daniel B. Stephens & Associates, Inc.



Photo #7

Date: July 10, 2012

Description: Looking Down at Crack Development in MATCON Cover.



Photo #8

Date: July 10, 2012

Description: Looking East at Water Ponding on the MATCON Cover.



Daniel B. Stephens & Associates, Inc.



Photo #9

Date: November 23, 2010

Description: Looking East at Water Ponding on the MATCON Cover.



Photo #10

Date: July 10, 2012

Description: Looking Down at Crack Development in MATCON Cover. Note: Pen and Size of Crack.



Daniel B. Stephens & Associates, Inc.



Photo #11

Date: July 10, 2012

Description: Looking Down at Crack Development in MATCON Cover. Note: Pen and Size of Crack.



Photo #12

Date: July 10, 2012

Description: Looking Down at Crack Development in MATCON Cover. Note: Pen Inside of Crack.



Photo #13

Date: July 10, 2012

Description: Looking West at Water Ponding and Vegetation Growth on MATCON Cover.



Photo #14

Date: July 10, 2012

Description: Looking Down at Crack Development in MATCON Cover..



Daniel B. Stephens & Associates, Inc.



Photo #15

Date: July 10, 2012

Description: Looking Down at Vegetative Growth and Old Mat Material in the Drainage Swale Around MATCON Cover..



Photo #16

Date: July 10, 2012

Description: Looking West at Cracking and Vegetation Growth on MATCON Cover.



Daniel B. Stephens & Associates, Inc.



Photo #17

Date: July 10, 2012

Description: Looking West at Water Ponding and Vegetation Growth near MATCON Cover.



Photo #18

Date: July 10, 2012

Description: Looking South at Vegetation Growth near MATCON Cover.



Photo #19

Date: July 10, 2012

Description: Looking Northease at Vegetation Growth near MATCON Cover.



Photo #20

Date: July 10, 2012

Description: Looking North at Vegetation Growth near MATCON Cover.



Daniel B. Stephens & Associates, Inc.



Photo #21
Date: July 10, 2012
Description: Looking West at Vegetation Growth in Drainage of MATCON Cover.



Photo #22
Date: July 10, 2012
Description: Looking East at Vegetation Growth in Drainage Retention Basin.



Photo #23
Date: July 10, 2012
Description: Looking Southeast at Drainage Retention Basin Outlet.



Photo #24
Date: July 10, 2012
Description: Looking West at Vegetation Growth in Drainage Retention Basin.



Daniel B. Stephens & Associates, Inc.



Photo #25
Date: July 10, 2012
Description: Looking South at Culvert Inlet under FM 93.



Photo #26
Date: July 10, 2012
Description: Looking West at Embankment with vegetation along Leon River.



Photo #27
Date: July 10, 2012
Description: Looking West at Sign on Property Boundary.



Photo #28
Date: July 10, 2012
Description: Looking North at Articulated Blocks installed on embankment of the Leon River.



Daniel B. Stephens & Associates, Inc.



Photo #29
Date: July 10, 2012
Description: Looking North at Drainage Culvert Inlet.



Photo #30
Date: July 10, 2012
Description: Looking Southwest at Drainage Culvert Outlet.



Daniel B. Stephens & Associates, Inc.



Photo #31
Date: July 10, 2012
Description: Looking East at Pathway in Cemetery Leading to Site.



Photo #32
Date: July 10, 2012
Description: Looking Northeast at Drainage Culvert Inlet.

Appendix 1-B

Groundwater Monitoring Photographic Documentation



Daniel B. Stephens & Associates, Inc.



Photo #1
Date: July 10, 2012

Description: Looking south at MW-7 Low-Flow Sampling on the Central Property.



Photo #2
Date: July 10, 2012

Description: Looking southwest at MW-9 Low-Flow Sampling on the Central Property.



Photo #3
Date: July 10, 2012

Description: Looking southeast at MW-10 Low-Flow Sampling on the Central Property.



Photo #4
Date: July 10, 2012

Description: Looking southeast at MW-11 Low-Flow Sampling on the Central Property.



Daniel B. Stephens & Associates, Inc.



Photo #5

Date: July 10, 2012

Description: Looking southwest at MW-17 Low-Flow Sampling on the Central Property.



Photo #6

Date: July 11, 2012

Description: Looking southwest at MW-20 Low-Flow Sampling on the North Property.



Photo #7

Date: July 11, 2012

Description: Looking southeast at MW-21 Low-Flow Sampling on the North Property.



Photo #8

Date: July 11, 2012

Description: Looking northeast at MW-22 Low-Flow Sampling on the North Property.



Daniel B. Stephens & Associates, Inc.



Photo #9
Date: July 11, 2012
Description: Looking northeast at MW-24-90
Low-Flow Sampling on the North Property.



Photo #10
Date: July 10, 2012
Description: Looking northwest at MW-28-90
Low-Flow Sampling on the Central Property.



Photo #11
Date: July 10, 2012
Description: Looking west at MW-29-90 Low-
Flow Sampling on the Central Property.



Photo #12
Date: July 10, 2012
Description: Looking southwest at MW-33-90
Low-Flow Sampling on the Central Property.



Daniel B. Stephens & Associates, Inc.



Photo #13
Date: July 10, 2012
Description: Looking North at MW-34-90 Low-Flow Sampling on the Central Property.



Photo #14
Date: July 11, 2012
Description: Looking south at MW-35-90 low-flow sampling on the North Property.



Photo #15
Date July 11, 2012
Description: Looking southeast at MW-37-90 Low-Flow Sampling on the North Property.



Photo #16
Date: July 11, 2012
Description: Looking northwest at MW-38-90 Low-Flow Sampling on the North Property.

Appendix 2

Data Review and Validation Memoranda and Laboratory Analytical Reports

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: 8/7/2012
Re: Data Review Memorandum, Rockwool Industries, Inc. Federal Superfund Site, Groundwater Sampling Event, July 2012

This Data Review Memorandum summarizes the results of the data review conducted for samples collected during July 2012 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
1207088	1207088-01	MW-7	07/10/2012	Aqueous	MET
	1207088-02	MW-9	07/10/2012	Aqueous	MET
	1207088-03	MW-10	07/10/2012	Aqueous	MET
	1207088-04	MW-11	07/10/2012	Aqueous	MET
	1207088-05	MW-17	07/10/2012	Aqueous	MET
	1207088-06	MW-19	07/11/2012	Aqueous	MET
	1207088-07	MW-24-90	07/11/2012	Aqueous	MET
	1207088-08	MW-27-90	07/11/2012	Aqueous	MET
	1207088-09	MW-28-90	07/11/2012	Aqueous	MET
	1207088-10	MW-29-90	07/11/2012	Aqueous	MET
	1207088-11	MW-30-90	07/11/2012	Aqueous	MET
	1207088-12	MW-33-90	07/10/2012	Aqueous	MET
	1207088-13	MW-34-90	07/10/2012	Aqueous	MET
	1207088-14	DUP-2	07/10/2012	Aqueous	MET
	1207088-15	ER-1	07/10/2012	Aqueous	MET
	1207088-16	MW-20	07/11/2012	Aqueous	MET
	1207088-17	MW-21	07/11/2012	Aqueous	MET
	1207088-18	MW-22	07/11/2012	Aqueous	MET
	1207088-19	MW-35-90	07/11/2012	Aqueous	MET
	1207088-20	MW-37-90	07/11/2012	Aqueous	MET
	1207088-21	MW-38-90	07/11/2012	Aqueous	MET
	1207088-22	DUP-1	07/11/2012	Aqueous	MET
	1207088-23	ER-2	07/11/2012	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 Texas Commission on Environmental Quality (TCEQ) Quality Assurance Project Plan (QAPP) for the Federal Superfund Program (Revision 8.0, QTRAK#11-483). The technical data review 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

To: William Gamblin, Daniel B. Stephens & Associates, Inc.

From: Nan Toole, ECS Environmental Chemistry Services

Date: 8/7/2012

Re: Data Validation Memorandum, Rockwool Industries, Inc. Federal Superfund Site, Groundwater Sampling Event, July 2012

This Data Validation memorandum contains the results of the data validation conducted for samples collected July 2012 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
1207088	1207088-01	MW-7	07/10/2012	Aqueous	MET
	1207088-02	MW-9	07/10/2012	Aqueous	MET
	1207088-03	MW-10	07/10/2012	Aqueous	MET
	1207088-04	MW-11	07/10/2012	Aqueous	MET
	1207088-05	MW-17	07/10/2012	Aqueous	MET
	1207088-06	MW-19	07/11/2012	Aqueous	MET
	1207088-07	MW-24-90	07/11/2012	Aqueous	MET
	1207088-08	MW-27-90	07/11/2012	Aqueous	MET
	1207088-09	MW-28-90	07/11/2012	Aqueous	MET
	1207088-10	MW-29-90	07/11/2012	Aqueous	MET
	1207088-11	MW-30-90	07/11/2012	Aqueous	MET
	1207088-12	MW-33-90	07/10/2012	Aqueous	MET
	1207088-13	MW-34-90	07/10/2012	Aqueous	MET
	1207088-14	DUP-2	07/10/2012	Aqueous	MET
	1207088-15	ER-1	07/10/2012	Aqueous	MET
	1207088-16	MW-20	07/11/2012	Aqueous	MET
	1207088-17	MW-21	07/11/2012	Aqueous	MET
	1207088-18	MW-22	07/11/2012	Aqueous	MET
	1207088-19	MW-35-90	07/11/2012	Aqueous	MET
	1207088-20	MW-37-90	07/11/2012	Aqueous	MET
	1207088-21	MW-38-90	07/11/2012	Aqueous	MET
	1207088-22	DUP-1	07/11/2012	Aqueous	MET
	1207088-23	ER-2	07/11/2012	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 8.0, QTRAK#11-483). The data validation resulted in no significant quality control anomalies, rejected data nor any corrective actions taken or recommended for future analyses.

DATA VALIDATION REPORT

ROCKWOOL INDUSTRIES, INC.

FEDERAL SUPERFUND SITE

1741 TAYLORS VALLEY ROAD

BELTON, BELL COUNTY, TEXAS

JULY 2012 SAMPLING EVENT

Prepared for

Texas Commission on Environmental Quality

Austin, Texas

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 7, 2012

1. INTRODUCTION

This Data Validation Report (DVR) contains the results of the data validation conducted by ECS Environmental Chemistry Services (ECS) for samples collected from the Rockwool Industries Federal Superfund Site in Belton, Bell County, Texas. This report covers a sampling event that was conducted during July 2012. ECS Environmental Chemistry Services (ECS) validated 10 percent of the chemical data analyzed by DHL Analytical in Round Rock, Texas. The following data are covered by this Technical Data Review:

DATA PACKAGE	LAB SAMPLE ID	FIELD SAMPLE ID	DATE COLLECTED	MATRIX	PARAMETER*
1207088	1207088-01	MW-7	07/10/2012	Aqueous	MET
	1207088-02	MW-9	07/10/2012	Aqueous	MET
	1207088-03	MW-10	07/10/2012	Aqueous	MET
	1207088-04	MW-11	07/10/2012	Aqueous	MET
	1207088-05	MW-17	07/10/2012	Aqueous	MET
	1207088-06	MW-19	07/11/2012	Aqueous	MET
	1207088-07	MW-24-90	07/11/2012	Aqueous	MET
	1207088-08	MW-27-90	07/11/2012	Aqueous	MET
	1207088-09	MW-28-90	07/11/2012	Aqueous	MET
	1207088-10	MW-29-90	07/11/2012	Aqueous	MET
	1207088-11	MW-30-90	07/11/2012	Aqueous	MET
	1207088-12	MW-33-90	07/10/2012	Aqueous	MET
	1207088-13	MW-34-90	07/10/2012	Aqueous	MET
	1207088-14	DUP-2	07/10/2012	Aqueous	MET
	1207088-15	ER-1	07/10/2012	Aqueous	MET
	1207088-16	MW-20	07/11/2012	Aqueous	MET
	1207088-17	MW-21	07/11/2012	Aqueous	MET
	1207088-18	MW-22	07/11/2012	Aqueous	MET
	1207088-19	MW-35-90	07/11/2012	Aqueous	MET
	1207088-20	MW-37-90	07/11/2012	Aqueous	MET
	1207088-21	MW-38-90	07/11/2012	Aqueous	MET
	1207088-22	DUP-1	07/11/2012	Aqueous	MET
	1207088-23	ER-2	07/11/2012	Aqueous	MET

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

The following field QC samples are covered by this DVR:

DATA PACKAGE	LAB SAMPLE ID	FIELD QC SAMPLE ID	FIELD QC SAMPLE TYPE	ASSOCIATED SAMPLES
1207088	1207088-14	DUP-2	Field Duplicate	1207088-13
	1207088-15	ER-1	Equipment Blank	1207088-01-05, 12-14
	1207088-22	DUP-1	Field Duplicate	1207088-17
	1207088-23	ER-2	Equipment Blank	1207088-06-11, 16-22

2. 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.

2.1 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.

2.1.1 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.

2.1.2 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.

2.1.3 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.

2.1.4 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.

2.1.5 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.

2.1.6 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. None of the metal data were qualified based on these QC items.

TECHNICAL DATA REVIEW

ROCKWOOL INDUSTRIES, INC.

FEDERAL SUPERFUND SITE

1741 TAYLORS VALLEY ROAD

BELTON, BELL COUNTY, TEXAS

JULY 2012 SAMPLING EVENT

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August 7, 2012

1. INTRODUCTION

This Technical Data Review (TDR) 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. This report covers a sampling event that was conducted during July 2012. ECS Environmental Chemistry Services (ECS) reviewed chemical data analyzed by DHL Analytical in Round Rock, Texas. The following data are covered by this Technical Data Review:

DATA PACKAGE	LAB SAMPLE ID	FIELD SAMPLE ID	DATE COLLECTED	MATRIX	PARAMETER*
1207088	1207088-01	MW-7	07/10/2012	Aqueous	MET
	1207088-02	MW-9	07/10/2012	Aqueous	MET
	1207088-03	MW-10	07/10/2012	Aqueous	MET
	1207088-04	MW-11	07/10/2012	Aqueous	MET
	1207088-05	MW-17	07/10/2012	Aqueous	MET
	1207088-06	MW-19	07/11/2012	Aqueous	MET
	1207088-07	MW-24-90	07/11/2012	Aqueous	MET
	1207088-08	MW-27-90	07/11/2012	Aqueous	MET
	1207088-09	MW-28-90	07/11/2012	Aqueous	MET
	1207088-10	MW-29-90	07/11/2012	Aqueous	MET
	1207088-11	MW-30-90	07/11/2012	Aqueous	MET
	1207088-12	MW-33-90	07/10/2012	Aqueous	MET
	1207088-13	MW-34-90	07/10/2012	Aqueous	MET
	1207088-14	DUP-2	07/10/2012	Aqueous	MET
	1207088-15	ER-1	07/10/2012	Aqueous	MET
	1207088-16	MW-20	07/11/2012	Aqueous	MET
	1207088-17	MW-21	07/11/2012	Aqueous	MET
	1207088-18	MW-22	07/11/2012	Aqueous	MET
	1207088-19	MW-35-90	07/11/2012	Aqueous	MET
	1207088-20	MW-37-90	07/11/2012	Aqueous	MET
	1207088-21	MW-38-90	07/11/2012	Aqueous	MET
	1207088-22	DUP-1	07/11/2012	Aqueous	MET
	1207088-23	ER-2	07/11/2012	Aqueous	MET

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

The following field QC samples are covered by this TDR:

DATA PACKAGE	LAB SAMPLE ID	FIELD QC SAMPLE ID	FIELD QC SAMPLE TYPE	ASSOCIATED SAMPLES
1207088	1207088-14	DUP-2	Field Duplicate	1207088-13
	1207088-15	ER-1	Equipment Blank	1207088-01-05, 12-14
	1207088-22	DUP-1	Field Duplicate	1207088-17
	1207088-23	ER-2	Equipment Blank	1207088-06-11, 16-22

2. DATA REVIEW RESULTS

2.1 METALS

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

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

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

2.1.1 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.

2.1.2 Blanks

All associated blanks were free of all reported analytes in concentrations at or greater than the SDLs. None of the metal data were qualified based on blank data.

2.1.3 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.

2.1.4 Matrix Spike Sample

A project sample was not analyzed as a MS/MSD.

2.1.5 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.

2.1.6 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
1207088	1207088-13/14	Antimony	0.323	0.318	RPD:2%	<=30%
		Arsenic	0.391	0.378	RPD:3%	<=30%
	1207088-17/22	Antimony	0.303	0.428	RPD:	<=30%
		Arsenic	0.00921	0.00545	DIF: 0.00376	<=0.0016
		Lead	0.00267	0.00100	DIF:	<=

Field Duplicate pair results in bold type in the table above were qualified as estimated based on field duplicate imprecision with "J" qualifiers for detects and "UJ" qualifiers for non-detect.

**DATA USABILITY SUMMARY
FOR
ROCKWOOL INDUSTRIES, INC.
FEDERAL SUPERFUND SITE
1741 TAYLORS VALLEY ROAD
BELTON, BELL COUNTY, TEXAS
JULY 2012**

Prepared by:

Nancy K. Toole
ECS Environmental Chemistry Services
PO Box 79782
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TABLE OF CONTENTS

SECTION	PAGE
1. NELAC/TLAP LABORATORY ACCREDITATION CERTIFICATION STATEMENT.....	1-1
2. INTRODUCTION.....	2-1
3. DATA REVIEW CRITERIA	3-1
4. LABORATORY REVIEW CHECKLIST REVIEW CRITERIA.....	4-1
5. DATA VALIDATION CRITERIA	5-1
6. DATA REVIEW RESULTS	6-1
6.1 METALS.....	6-1
6.1.1 HOLDING TIME/PRESERVATION REQUIREMENTS	6-1
6.1.2 BLANKS.....	6-2
6.1.3 LABORATORY CONTROL SAMPLE (LCS)	6-2
6.1.4 MATRIX SPIKE SAMPLE	6-2
6.1.5 DUPLICATE SAMPLE	6-2
6.1.6 FIELD DUPLICATES.....	6-3
7. DATA VALIDATION RESULTS.....	7-1
7.1 ICP/MS METALS	7-1
7.1.1 INSTRUMENT PERFORMANCE	7-2
7.1.2 INITIAL CALIBRATION	7.2
7.1.3 INITIAL AND CONTINUING CALIBRATION VERIFICATION	7.2
7.1.4 INTERNAL STANDARDS.....	7.2
7.1.5 INTERFERENCE CHECK SOLUTION	7.3
7.1.6 SERIAL DILUTION, POST DIGESTION SPIKE, METHOD OF STANDARD ADDITIONS	7.3
8. OVERALL ASSESSMENT DATA USABILITY RELATIVE TO PROJECT OBJECTIVES	8-1
9. DATA USABILITY RELATIVE TO PROJECT OBJECTIVES	9-2
9.1 EVALUATION OF SAMPLE DETECTION LIMITS AND METHOD QUANTITATION LIMITS RELATIVE TO THE ACTION LEVELS	9-2
9.2 POTENTIAL EFFECTS OF BIASES AND IMPRECISION ON USABILITY OF THE DATA....	9-2
10. POTENTIAL ADDITIONAL USES AND LIMITATIONS.....	10-1
11. CORRECTIVE ACTIONS AND WORKPLAN DEVIATIONS	11-1
12. REJECTED DATA AND PROJECT CONSEQUENCES	12-1
13. CONCLUSIONS.....	13-1

APPENDICES

Appendix A Qualified TRRP Reports

Appendix B NELAP Laboratory Certificate

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.

This sampling event was conducted during July 2012. This sampling event includes data package 1207088. The qualified TRRP Report is presented in Appendix A. A copy of the DHL NELAP accreditation certificate is 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. This report covers a sampling event that was conducted during July 2012. 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 8.0, QTRAK#11-483).

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

SDG	LAB SAMPLE ID	FIELD SAMPLE ID	DATE COLL.	MATRIX	PARAMETER
1207088	1207088-01	MW-7	07/10/2012	Aqueous	MET
	1207088-02	MW-9	07/10/2012	Aqueous	MET
	1207088-03	MW-10	07/10/2012	Aqueous	MET
	1207088-04	MW-11	07/10/2012	Aqueous	MET
	1207088-05	MW-17	07/10/2012	Aqueous	MET
	1207088-06	MW-19	07/11/2012	Aqueous	MET
	1207088-07	MW-24-90	07/11/2012	Aqueous	MET
	1207088-08	MW-27-90	07/11/2012	Aqueous	MET
	1207088-09	MW-28-90	07/11/2012	Aqueous	MET
	1207088-10	MW-29-90	07/11/2012	Aqueous	MET
	1207088-11	MW-30-90	07/11/2012	Aqueous	MET
	1207088-12	MW-33-90	07/10/2012	Aqueous	MET
	1207088-13	MW-34-90	07/10/2012	Aqueous	MET
	1207088-14	DUP-2	07/10/2012	Aqueous	MET
	1207088-15	ER-1	07/10/2012	Aqueous	MET
	1207088-16	MW-20	07/11/2012	Aqueous	MET
	1207088-17	MW-21	07/11/2012	Aqueous	MET
	1207088-18	MW-22	07/11/2012	Aqueous	MET
	1207088-19	MW-35-90	07/11/2012	Aqueous	MET
	1207088-20	MW-37-90	07/11/2012	Aqueous	MET
	1207088-21	MW-38-90	07/11/2012	Aqueous	MET
	1207088-22	DUP-1	07/11/2012	Aqueous	MET
	1207088-23	ER-2	07/11/2012	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
1207088	1207088-14	DUP-2	Field Duplicate	1207088-13
	1207088-15	ER-1	Equipment Blank	1207088-01-05, 12-14
	1207088-22	DUP-1	Field Duplicate	1207088-17
	1207088-23	ER-2	Equipment Blank	1207088-06-11, 16-22

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 batches:

- Metal Batch 52757

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 metal data, the following items are reviewed in this section:

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

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 all reported analytes in concentrations at or greater than the SDLs. None of the metal data were qualified based on blank data.

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

A project sample was not analyzed as a MS/MSD.

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
1207088	1207088-13/14	Antimony	0.323	0.318	RPD:2%	<=30%
		Arsenic	0.391	0.378	RPD:3%	<=30%
	1207088-17/22	Antimony	0.303	0.428	RPD:	<=30%
		Arsenic	0.00921	0.00545	DIF: 0.00376	<=0.0016
		Lead	0.00267	0.00100	DIF:	<=

Field Duplicate pair results in bold type in the table above were qualified as estimated based on field duplicate imprecision with “J” qualifiers for detects and “UJ” qualifiers for non-detect.

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, respectively. None of the metal data were qualified based on these QC items.

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 75% of the field and laboratory duplicate results were within applicable acceptance ranges, the overall level of precision is considered acceptable. Since only three metals in four quality assurance samples were measured for precision in this project, the overall precision is deemed 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/kg)	Level of Required Performance (LORP) (mg/l)
Antimony	0.00080	0.006
Arsenic	0.00200	0.010
Lead (inorganic)	0.00030	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
1207088	1207088-17/22	Antimony	0.303	0.428	0.006	1
		Arsenic	0.00921	0.00545	0.010	2
		Lead	0.00267	0.00100	0.005	2

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.

Code 2: The interpretation of the original result, as being below the LORP, is not impacted by the field duplicate imprecision because both results are below the LORP.

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

10. POTENTIAL ADDITIONAL USES AND LIMITATIONS

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

11. CORRECTIVE ACTIONS AND WORKPLAN DEVIATIONS

Work Plan deviations were not identified by the field team. Corrective actions were not required on this project.

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.
R	The data are unusable. (Note: Analyte may or may not be present.)



July 23, 2012

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

FAX Order No.: 1207088
RE: Rockwool Ind. - Belton, TX

Dear Paul Kirby:

DHL Analytical received 23 sample(s) on 7/12/2012 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,

A handwritten signature in black ink that reads "John DuPont".

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-12-8



Table of Contents

Miscellaneous Documents	3
CaseNarrative 1207088	9
WorkOrderSampleSummary 1207088	10
PrepDatesReport 1207088	11
AnalyticalDatesReport 1207088	12
Analytical Report 1207088	13
AnalyticalQCSummaryReport 1207088	36
MQLSummaryReport 1207088	46
ICP-MS2 Raw Data	47
ICP-MS3 Raw Data	123



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

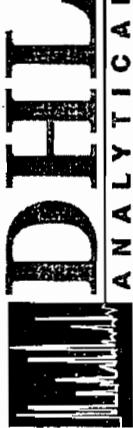


DHL
ANALYTICAL
CHAIN-OF-CUSTODY

CLIENT: Daniel B. Stephens & Associates
 ADDRESS: 4030 W. Braker Lane, Ste. 325 Austin, TX 78759
 PHONE: 512-821-2705 FAX/E-MAIL:
 DATA REPORTED TO: William Daniels
 ADDITIONAL REPORT COPIES TO:

DATE: 7-12-12 PO #: PROJECT LOCATION OR NAME: Rockaway Inv. - Belton, TX
 COLLECTOR: Bud Shirley
 CLIENT PROJECT #: ES12.AIR5.11

ANALYSES			PRESERVATION			FIELD NOTES				
Field Sample ID.	DHL Lab #	Date	Time	Matrix	Container Type	HCl	HNO ₃	KClO ₃ , NaOH		
						# of Containers				
MW-7	01	7-10-12	1725	W	Plastic	X				
MW-9	02	7-10-12	1535	W	Plastic	X				
MW-10	03	7-10-12	1215	W	Plastic	X				
MW-11	04	7-10-12	1125	W	Plastic	X				
MW-12	05	7-10-12	1018	W	Plastic	X				
MW-13	06	7-11-12	0950	W	Plastic	X				
MW-24-90	07	7-11-12	1112	W	Plastic	X				
MW-27-90	08	7-11-12	0833	W	Plastic	X				
MW-28-90	09	7-11-12	0810	W	Plastic	X				
MW-29-90	10	7-11-12	0755	W	Plastic	X				
MW-30-90	11	7-11-12	1200	W	Plastic	X				
MW-33-90	12	7-10-12	1135	W	Plastic	X				
MW-34-90	13	7-10-12	1432	W	Plastic	X				
DUP-2	14	7-10-12	1315	W	Plastic	X				
ER-1	15	7-10-12	1910	W	Plastic	X				
TOTAL										
RELINQUISHED BY: <u>B. Shirley</u>	DATE/TIME RECEIVED BY: <u>B. Shirley</u>			RECEIVED BY: <u>B. Shirley</u>			LABORATORY USE ONLY:			
RELINQUISHED BY: <u>(Signature)</u>	DATE/TIME <u>7-12-09 35</u>			RECEIVED BY: <u>(Signature)</u>			RECEIVING TEMP: <u>3.7</u>			
RELINQUISHED BY: <u>(Signature)</u>	DATE/TIME			RECEIVED BY: <u>(Signature)</u>			THERM #: <u>57</u>			
RELINQUISHED BY: <u>(Signature)</u>	DATE/TIME			RECEIVED BY: <u>(Signature)</u>			CUSTODY SEALS: <input type="checkbox"/> BROKEN <input type="checkbox"/> INTACT <input checked="" type="checkbox"/> NOT USED			
RELINQUISHED BY: <u>(Signature)</u>	DATE/TIME			RECEIVED BY: <u>(Signature)</u>			CARRIER BILL #: <u></u>			
<input type="checkbox"/> DHL DISPOSAL @ \$5.00 each			DATE/TIME <u>Return</u>			<input type="checkbox"/> APC DELIVERY			<input type="checkbox"/> HAND DELIVERED	
<input type="checkbox"/> DHL DISPOSAL @ \$5.00 each			DATE/TIME <u>Return</u>			<input type="checkbox"/> APC DELIVERY			<input type="checkbox"/> HAND DELIVERED	



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 E-Mail: login@dhlanalytical.com



Nº 55362
CHAIN-OF-CUSTODY

CLIENT: Daniel B. Stephens & Associates
 ADDRESS: 4030 W. Braker Lane #100, 325 Austin, TX 78759
 PHONE: 512-821-2265 FAX/E-MAIL:
 DATA REPORTED TO: William Cambria

ADDITIONAL REPORT COPIES TO:
 Yes No

DATE: 7-12-12
 PO #: _____
 PROJECT LOCATION OR NAME: Rockwood Ind. - Belton, TX
 CLIENT PROJECT #: ES12.AIRS.11 COLLECTOR: Bud Sharry

ANALYSES	DHL Lab #	Date	Time	Matrix	Container Type		PRESERVATION	FIELD NOTES
					# of Containers			
					HCl	HNO ₃ , H ₂ SO ₄ , NaOH		
MW-20	14	7-11-12	13:48	Water	Plastic		X	
MW-21	17	7-11-12	15:04	Water	Plastic		X	
MW-22	18	7-11-12	13:57	Water	Plastic		X	
MW-35-90	15	7-11-12	17:40	Water	Plastic		X	
MW-37-90	22	7-11-12	16:38	Water	Plastic		X	
MW-38-90	21	7-11-12	15:47	Water	Plastic		X	
DUP-1	22	7-11-12	15:32	Water	Plastic		X	
ER-2	23	7-11-12	17:21	Water	Plastic		X	
RECEIVED BY: (Signature) <u>B. Sharry</u>								
REINQUISITIONED BY: (Signature) <u>B. Sharry</u>								
REINQUISITIONED BY: (Signature) <u>B. Sharry</u>								
TOTAL <u>286</u>								
RECEIVED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME		LABORATORY USE ONLY:
		<u>7-12-12 10:35</u>				<u>7-12-12 10:35</u>		<u>RECEIVING TEMP: 3.7</u>
REINQUISITIONED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME		THERM #: <u>57</u>
RUSH <input type="checkbox"/> CALL FIRST <input checked="" type="checkbox"/> 1 DAY <input type="checkbox"/> CALL FIRST <input type="checkbox"/> 2 DAY <input type="checkbox"/> NORMAL <input checked="" type="checkbox"/> OTHER <input type="checkbox"/>								
CUSTODY SEALS: <input type="checkbox"/> BROKEN <input checked="" type="checkbox"/> INTACT <input checked="" type="checkbox"/> NOT USED <input type="checkbox"/> CARRIER BILL #: _____								
APC DELIVERY <input type="checkbox"/> HAND DELIVERED								

DHL Analytical

Sample Receipt Checklist

Client Name D. B. Stephens & Assoc, Inc.

Date Received: 7/12/2012

Work Order Number 1207088

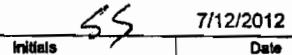
Received by JB

Checklist completed by:


Signature

7/12/2012
Date

Reviewed by


Initials SS
Date 7/12/2012

Carrier name: Hand Delivered

Shipping container/coolier in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/coolier?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	3.7 °C
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>

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 Ind. - Belton, TX		Date: 7/23/12				
Reviewer Name: Carlos Castro		Laboratory Work Order: 1207088				
Prep Batch Number(s): See Prep Dates Report		Run Batch: See Analytical Dates Report				
# ¹	A ²	Description	Yes	No	NA ³	NR ⁴
R1	OI	Chain-of-Custody (C-O-C)				ER# ⁵
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 Ind. - Belton, TX		Date: 7/23/12				
Reviewer Name: Carlos Castro		Laboratory Work Order: 1207088				
# ¹	A ²	Description	Yes	No	NA ³	NR ⁴
S1	OI	Initial Calibration (ICAL)				ER# ⁵
		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 (DCS results can be found with the Miscellaneous Documents) 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 17-20, 2011. 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

07/23/12

Date

DHL Analytical

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Lab Order: 1207088

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 7/12/12. A total of 23 samples were received. The samples arrived in good condition and were properly packaged.

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Lab Order: 1207088

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1207088-01	MW-7		07/10/12 05:25 PM	7/12/2012
1207088-02	MW-9		07/10/12 03:35 PM	7/12/2012
1207088-03	MW-10		07/10/12 12:15 PM	7/12/2012
1207088-04	MW-11		07/10/12 11:25 AM	7/12/2012
1207088-05	MW-17		07/10/12 10:18 AM	7/12/2012
1207088-06	MW-19		07/11/12 09:59 AM	7/12/2012
1207088-07	MW-24-90		07/11/12 11:12 AM	7/12/2012
1207088-08	MW-27-90		07/11/12 08:23 AM	7/12/2012
1207088-09	MW-28-90		07/11/12 08:10 AM	7/12/2012
1207088-10	MW-29-90		07/11/12 07:55 AM	7/12/2012
1207088-11	MW-30-90		07/11/12 12:00 PM	7/12/2012
1207088-12	MW-33-90		07/10/12 04:35 PM	7/12/2012
1207088-13	MW-34-90		07/10/12 02:32 PM	7/12/2012
1207088-14	DUP-2		07/10/12 01:15 PM	7/12/2012
1207088-15	ER-1		07/10/12 07:10 PM	7/12/2012
1207088-16	MW-20		07/11/12 12:48 PM	7/12/2012
1207088-17	MW-21		07/11/12 03:04 PM	7/12/2012
1207088-18	MW-22		07/11/12 01:57 PM	7/12/2012
1207088-19	MW-35-90		07/11/12 05:40 PM	7/12/2012
1207088-20	MW-37-90		07/11/12 04:38 PM	7/12/2012
1207088-21	MW-38-90		07/11/12 03:46 PM	7/12/2012
1207088-22	DUP-1		07/11/12 03:32 PM	7/12/2012
1207088-23	ER-2		07/11/12 05:21 PM	7/12/2012

DHL Analytical

23-Jul-12

PREP DATES REPORT

Lab Order:	Client Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1207088-01A	MW-7		07/10/12 05:25 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-02A	MW-9		07/10/12 03:35 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-03A	MW-10		07/10/12 12:15 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-04A	MW-11		07/10/12 11:25 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-05A	MW-17		07/10/12 10:18 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-06A	MW-19		07/11/12 09:59 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-07A	MW-24-90		07/11/12 11:12 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-08A	MW-27-90		07/11/12 08:23 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-09A	MW-28-90		07/11/12 08:10 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-10A	MW-29-90		07/11/12 07:55 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-11A	MW-30-90		07/11/12 12:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-12A	MW-33-90		07/10/12 04:35 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-13A	MW-34-90		07/10/12 02:32 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-14A	DUP-2		07/10/12 01:15 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-15A	ER-1		07/10/12 07:10 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-16A	MW-20		07/11/12 12:48 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-17A	MW-21		07/11/12 03:04 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-18A	MW-22		07/11/12 01:57 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-19A	MW-35-90		07/11/12 05:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
	MW-35-90		07/11/12 05:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-20A	MW-37-90		07/11/12 04:38 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52758
1207088-21A	MW-38-90		07/11/12 03:46 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52758
1207088-22A	DUP-1		07/11/12 03:32 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52758
1207088-23A	ER-2		07/11/12 05:21 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52758

DHL Analytical

23-Jul-12

Lab Order: 1207088
Client: D. B. Stephens & Assoc., Inc.
Project: Rockwool Ind. - Belton, TX

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1207088-01A	MW-7	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 01:33 PM	ICP-MS2_120718C
1207088-02A	MW-9	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 01:39 PM	ICP-MS2_120718C
1207088-03A	MW-10	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 01:45 PM	ICP-MS2_120718C
1207088-04A	MW-11	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 01:50 PM	ICP-MS2_120718C
1207088-05A	MW-17	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 01:56 PM	ICP-MS2_120718C
1207088-06A	MW-19	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 02:02 PM	ICP-MS2_120718C
1207088-07A	MW-24-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 02:08 PM	ICP-MS2_120718C
1207088-08A	MW-27-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 02:14 PM	ICP-MS2_120718C
1207088-09A	MW-28-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 02:20 PM	ICP-MS2_120718C
1207088-10A	MW-29-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 03:30 PM	ICP-MS2_120718C
1207088-11A	MW-30-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 03:36 PM	ICP-MS2_120718C
1207088-12A	MW-33-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 03:43 PM	ICP-MS2_120718C
1207088-13A	MW-34-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 03:52 PM	ICP-MS2_120718C
1207088-14A	DUP-2	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 03:58 PM	ICP-MS2_120718C
1207088-15A	ER-1	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 04:04 PM	ICP-MS2_120718C
1207088-16A	MW-20	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 04:10 PM	ICP-MS2_120718C
1207088-17A	MW-21	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 04:16 PM	ICP-MS2_120718C
1207088-18A	MW-22	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 04:22 PM	ICP-MS2_120718C
1207088-19A	MW-35-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 04:28 PM	ICP-MS2_120718C
	MW-35-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	5	07/18/12 11:48 PM	ICP-MS2_120718C
1207088-20A	MW-37-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52758	1	07/18/12 07:45 PM	ICP-MS3_120718A
1207088-21A	MW-38-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52758	1	07/18/12 07:51 PM	ICP-MS3_120718A
1207088-22A	DUP-1	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52758	1	07/18/12 07:56 PM	ICP-MS3_120718A
1207088-23A	ER-2	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	52758	1	07/18/12 08:02 PM	ICP-MS3_120718A

DHL Analytical

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-7
Lab ID: 1207088-01
Collection Date: 07/10/12 05:25 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
			SW6020A				Analyst: SW
Antimony	0.00153	0.000800	0.00250	J	mg/L	1	07/18/12 01:33 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	07/18/12 01:33 PM
Lead	0.000690	0.000300	0.00100	J	mg/L	1	07/18/12 01:33 PM

MIL
8-6-12

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

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-9
Lab ID: 1207088-02
Collection Date: 07/10/12 03:35 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
Antimony	0.249	0.000800	0.00250		mg/L	1	07/18/12 01:39 PM
Arsenic	0.0810	0.00200	0.00500		mg/L	1	07/18/12 01:39 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	07/18/12 01:39 PM

MKT
8/6/12

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

Page 2 of 23

DHL Analytical

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-10
Lab ID: 1207088-03
Collection Date: 07/10/12 12:15 PM
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	07/18/12 01:45 PM
Arsenic	0.00302	0.00200	0.00500	J	mg/L	1	07/18/12 01:45 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	07/18/12 01:45 PM

MW1
8-6-12

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

Page 3 of 23

DHL Analytical

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-11
Lab ID: 1207088-04
Collection Date: 07/10/12 11:25 AM
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	07/18/12 01:50 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	07/18/12 01:50 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	07/18/12 01:50 PM

MKT
8-6-12

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

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-17
Lab ID: 1207088-05
Collection Date: 07/10/12 10:18 AM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
			SW6020A				Analyst: SW
Antimony	0.00828	0.000800	0.00250		mg/L	1	07/18/12 01:56 PM
Arsenic	0.00595	0.00200	0.00500		mg/L	1	07/18/12 01:56 PM
Lead	0.000705	0.000300	0.00100	J	mg/L	1	07/18/12 01:56 PM

MWJ
8-6-12

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

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-19
Lab ID: 1207088-06
Collection Date: 07/11/12 09:59 AM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
		SW6020A					Analyst: SW
Antimony	0.00140	0.000800	0.00250	J	mg/L	1	07/18/12 02:02 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	07/18/12 02:02 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	07/18/12 02:02 PM

MW 12/8/12

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

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-24-90
Lab ID: 1207088-07
Collection Date: 07/11/12 11:12 AM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
			SW6020A				Analyst: SW
Antimony	0.00352	0.000800	0.00250		mg/L	1	07/18/12 02:08 PM
Arsenic	0.00215	0.00200	0.00500	J	mg/L	1	07/18/12 02:08 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	07/18/12 02:08 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

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-27-90
Lab ID: 1207088-08
Collection Date: 07/11/12 08:23 AM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
				SW6020A			Analyst: SW
Antimony	0.0717	0.000800	0.00250		mg/L	1	07/18/12 02:14 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	07/18/12 02:14 PM
Lead	0.000480	0.000300	0.00100	J	mg/L	1	07/18/12 02:14 PM

*MIC
8/6/12*

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

Page 8 of 23

DHL Analytical

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-28-90
Lab ID: 1207088-09
Collection Date: 07/11/12 08:10 AM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
				SW6020A			Analyst: SW
Antimony	0.0299	0.000800	0.00250		mg/L	1	07/18/12 02:20 PM
Arsenic	0.0689	0.00200	0.00500		mg/L	1	07/18/12 02:20 PM
Lead	0.000735	0.000300	0.00100	J	mg/L	1	07/18/12 02:20 PM

MWJ
8.6.12

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

Date: 23-Jul-12

CLIENT:	D. B. Stephens & Assoc, Inc.	Client Sample ID:	MW-29-90
Project:	Rockwool Ind. - Belton, TX	Lab ID:	1207088-10
Project No:	ES12.AIRS.11	Collection Date:	07/11/12 07:55 AM
Lab Order:	1207088	Matrix:	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
				SW6020A			Analyst: SW
Antimony	0.0283	0.000800	0.00250		mg/L	1	07/18/12 03:30 PM
Arsenic	0.00503	0.00200	0.00500		mg/L	1	07/18/12 03:30 PM
Lead	0.00231	0.000300	0.00100		mg/L	1	07/18/12 03:30 PM

*MIC
8/6/12*

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

DHL Analytical

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc. **Client Sample ID:** MW-30-90
Project: Rockwool Ind. - Belton, TX **Lab ID:** 1207088-11
Project No: ES12.AIRS.11 **Collection Date:** 07/11/12 12:00 PM
Lab Order: 1207088 **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	07/18/12 03:36 PM
Arsenic	0.00269	0.00200	0.00500	J	mg/L	1	07/18/12 03:36 PM
Lead	0.0113	0.000300	0.00100		mg/L	1	07/18/12 03:36 PM

*MIC 7
G-612*

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

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-33-90
Lab ID: 1207088-12
Collection Date: 07/10/12 04:35 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
		SW6020A					Analyst: SW
Antimony	0.159	0.000800	0.00250		mg/L	1	07/18/12 03:43 PM
Arsenic	0.0312	0.00200	0.00500		mg/L	1	07/18/12 03:43 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	07/18/12 03:43 PM

*MVJ
8/6/12*

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

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-34-90
Lab ID: 1207088-13
Collection Date: 07/10/12 02:32 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
			SW6020A				Analyst: SW
Antimony	0.323	0.000800	0.00250		mg/L	1	07/18/12 03:52 PM
Arsenic	0.391	0.00200	0.00500		mg/L	1	07/18/12 03:52 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	07/18/12 03:52 PM

MIC
4.612

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

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: DUP-2
Lab ID: 1207088-14
Collection Date: 07/10/12 01:15 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
		SW6020A					Analyst: SW
Antimony	0.318	0.000800	0.00250		mg/L	1	07/18/12 03:58 PM
Arsenic	0.378	0.00200	0.00500		mg/L	1	07/18/12 03:58 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	07/18/12 03:58 PM

MKJ
8-6-12

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**Date:** 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: ER-1
Lab ID: 1207088-15
Collection Date: 07/10/12 07:10 PM
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	07/18/12 04:04 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	07/18/12 04:04 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	07/18/12 04:04 PM

NET
8/6/12

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

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.**Client Sample ID:** MW-20**Project:** Rockwool Ind. - Belton, TX**Lab ID:** 1207088-16**Project No:** ES12.AIRS.11**Collection Date:** 07/11/12 12:48 PM**Lab Order:** 1207088**Matrix:** AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
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TRACE METALS: ICP-MS - WATER**SW6020A****Analyst:** SW

Antimony	0.00236	0.000800	0.00250	J	mg/L	1	07/18/12 04:10 PM
Arsenic	0.00267	0.00200	0.00500	J	mg/L	1	07/18/12 04:10 PM
Lead	0.000420	0.000300	0.00100	J	mg/L	1	07/18/12 04:10 PM

*MKT
8.612***Qualifiers:** ND - Not Detected at the SDL

S - Spike Recovery outside control limits

J - Analyte detected between SDL and RL

C - Sample Result or QC discussed in Case Narrative

B - Analyte detected in the associated Method Blank

RL - Reporting Limit (MQL adjusted for moisture and sample size)

DF - Dilution Factor

SDL - Sample Detection Limit

N - Parameter not NELAC certified

E - TPH pattern not Gas or Diesel Range Pattern

See Final Page of Report for MQLs and MDLs

Page 16 of 23

DHL Analytical

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-21
Lab ID: 1207088-17
Collection Date: 07/11/12 03:04 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed	
TRACE METALS: ICP-MS - WATER								
Antimony	J1-FD	0.303	0.000800	0.00250	mg/L	1	07/18/12 04:16 PM	ECS
Arsenic	J1-FD	0.00921	0.00200	0.00500	mg/L	1	07/18/12 04:16 PM	ECS
Lead	J1-FD	0.00267	0.000300	0.00100	mg/L	1	07/18/12 04:16 PM	ECS

JK
8-6-12

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

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-22
Lab ID: 1207088-18
Collection Date: 07/11/12 01:57 PM
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	07/18/12 04:22 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	07/18/12 04:22 PM
Lead	0.00368	0.000300	0.00100		mg/L	1	07/18/12 04:22 PM

AKJ
8.6-12

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**Date:** 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-35-90
Lab ID: 1207088-19
Collection Date: 07/11/12 05:40 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
			SW6020A				Analyst: SW
Antimony	0.526	0.00400	0.0125		mg/L	5	07/18/12 11:48 PM
Arsenic	0.0904	0.00200	0.00500		mg/L	1	07/18/12 04:28 PM
Lead	0.0113	0.000300	0.00100		mg/L	1	07/18/12 04:28 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

Page 19 of 23

DHL Analytical

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-37-90
Lab ID: 1207088-20
Collection Date: 07/11/12 04:38 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
			SW6020A				Analyst: SW
Antimony	0.00105	0.000800	0.00250	J	mg/L	1	07/18/12 07:45 PM
Arsenic	0.0325	0.00200	0.00500		mg/L	1	07/18/12 07:45 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	07/18/12 07:45 PM

MVJ
gr6.12

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

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-38-90
Lab ID: 1207088-21
Collection Date: 07/11/12 03:46 PM
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	07/18/12 07:51 PM
Arsenic	0.00681	0.00200	0.00500		mg/L	1	07/18/12 07:51 PM
Lead	0.00354	0.000300	0.00100		mg/L	1	07/18/12 07:51 PM

7/18/12
Sb 12

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

Page 21 of 23

DHL Analytical

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: DUP-1
Lab ID: 1207088-22
Collection Date: 07/11/12 03:32 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
Antimony	J1-FD	0.428	0.000800	0.00250	mg/L	1	07/18/12 07:56 PM
Arsenic	J1-FD	0.00545	0.00200	0.00500	mg/L	1	07/18/12 07:56 PM
Lead	J1-FD	0.00100	0.000300	0.00100	mg/L	1	07/18/12 07:56 PM

ECS
ECS
ECS



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

Page 22 of 23

DHL Analytical**Date:** 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: ER-2
Lab ID: 1207088-23
Collection Date: 07/11/12 05:21 PM
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	07/18/12 08:02 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	07/18/12 08:02 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	07/18/12 08:02 PM

WV
8/6/12

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

Page 23 of 23

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1207088
Project: Rockwool Ind. - Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS2_120511A

Sample ID: DCS-51554-1	Batch ID: 51554	TestNo:	SW6020	Units:	mg/L					
SampType: DCS	Run ID: ICP-MS2_120511A	Analysis Date:	5/11/2012 12:27:00 PM	Prep Date:	4/26/2012					
<hr/>										
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00110	0.00250	0.00100	0	110	60	140	0	0	0
Arsenic	0.000934	0.00600	0.00100	0	93.4	60	140	0	0	0
Lead	0.000981	0.00100	0.00100	0	98.1	60	140	0	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

Page 1 of 10

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1207088
Project: Rockwool Ind. - Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS2_120718C

The QC data in batch 52757 applies to the following samples: 1207088-01A, 1207088-02A, 1207088-03A, 1207088-04A, 1207088-05A, 1207088-06A, 1207088-07A, 1207088-08A, 1207088-09A, 1207088-10A, 1207088-11A, 1207088-12A, 1207088-13A, 1207088-14A, 1207088-15A, 1207088-16A, 1207088-17A, 1207088-18A, 1207088-19A

Sample ID:	MB-52757	Batch ID:	52757	TestNo:	SW6020A	Units:	mg/L			
SampType:	MBLK	Run ID:	ICP-MS2_120718C	Analysis Date:		7/18/2012 12:57:00 PM	Prep Date:	7/17/2012		
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								
Sample ID:	LCS-52757	Batch ID:	52757	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCS	Run ID:	ICP-MS2_120718C	Analysis Date:		7/18/2012 1:03:00 PM	Prep Date:	7/17/2012		
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.188	0.00250	0.200	0	94.0	80	120			
Arsenic	0.196	0.00500	0.200	0	98.2	80	120			
Lead	0.193	0.00100	0.200	0	96.4	80	120			
Sample ID:	LCSD-52757	Batch ID:	52757	TestNo:	SW6020A	Units:	mg/L			
SampType:	LCSD	Run ID:	ICP-MS2_120718C	Analysis Date:		7/18/2012 1:09:00 PM	Prep Date:	7/17/2012		
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.188	0.00250	0.200	0	93.8	80	120	0.160	15	
Arsenic	0.197	0.00500	0.200	0	98.4	80	120	0.203	15	
Lead	0.193	0.00100	0.200	0	96.5	80	120	0.156	15	
Sample ID:	1207123-01E SD	Batch ID:	52757	TestNo:	SW6020A	Units:	mg/L			
SampType:	SD	Run ID:	ICP-MS2_120718C	Analysis Date:		7/18/2012 1:27:00 PM	Prep Date:	7/17/2012		
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	0.000329				0	10	
Sample ID:	1207123-01E PDS	Batch ID:	52757	TestNo:	SW6020A	Units:	mg/L			
SampType:	PDS	Run ID:	ICP-MS2_120718C	Analysis Date:		7/18/2012 2:26:00 PM	Prep Date:	7/17/2012		
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	0.194	0.00500	0.200	0	96.9	80	120			
Lead	0.192	0.00100	0.200	0.000329	95.8	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

Page 2 of 10

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1207088
Project: Rockwool Ind. - Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS2_120718C

Sample ID: 1207123-01E MS	Batch ID: 52757	TestNo:	SW6020A	Units:	mg/L
SampType: MS	Run ID: ICP-MS2_120718C		Analysis Date: 7/18/2012 2:32:00 PM	Prep Date:	7/17/2012

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.190	0.00250	0.200	0	95.2	80	120			
Arsenic	0.196	0.00500	0.200	0	98.2	80	120			
Lead	0.189	0.00100	0.200	0.000329	94.5	80	120			

Sample ID: 1207123-01E MSD	Batch ID: 52757	TestNo:	SW6020A	Units:	mg/L
SampType: MSD	Run ID: ICP-MS2_120718C		Analysis Date: 7/18/2012 2:38:00 PM	Prep Date:	7/17/2012

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.193	0.00250	0.200	0	96.5	80	120	1.30	15	
Arsenic	0.198	0.00500	0.200	0	99.0	80	120	0.812	15	
Lead	0.196	0.00100	0.200	0.000329	97.7	80	120	3.32	15	

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

Page 3 of 10

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1207088
Project: Rockwool Ind. - Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS2_120718C

Sample ID: LCVL-120718	Batch ID: R61479	TestNo: SW6020A	Units: mg/L							
SampType: LCVL	Run ID: ICP-MS2_120718C	Analysis Date: 7/18/2012 12:44:00 PM	Prep Date:							
Analyte Result RL SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual										
Antimony	0.00185	0.00250	0.00200	0	92.7	70	130			
Arsenic	0.00507	0.00500	0.00500	0	101	70	130			
Lead	0.000953	0.00100	0.00100	0	95.3	70	130			
Sample ID: LCVL1-120718 Batch ID: R61479 TestNo: SW6020A Units: mg/L										
SampType: LCVL	Run ID: ICP-MS2_120718C	Analysis Date: 7/18/2012 3:07:00 PM	Prep Date:							
Analyte Result RL SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual										
Antimony	0.00245	0.00250	0.00200	0	122	70	130			
Arsenic	0.00516	0.00500	0.00500	0	103	70	130			
Lead	0.000949	0.00100	0.00100	0	94.9	70	130			
Sample ID: LCVL2-120718 Batch ID: R61479 TestNo: SW6020A Units: mg/L										
SampType: LCVL	Run ID: ICP-MS2_120718C	Analysis Date: 7/18/2012 5:09:00 PM	Prep Date:							
Analyte Result RL SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual										
Antimony	0.00212	0.00250	0.00200	0	106	70	130			
Arsenic	0.00519	0.00500	0.00500	0	104	70	130			
Lead	0.000938	0.00100	0.00100	0	93.8	70	130			
Sample ID: LCVL4-120718 Batch ID: R61479 TestNo: SW6020A Units: mg/L										
SampType: LCVL	Run ID: ICP-MS2_120718C	Analysis Date: 7/18/2012 9:49:00 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			
Sample ID: LCVL5-120718 Batch ID: R61479 TestNo: SW6020A Units: mg/L										
SampType: LCVL	Run ID: ICP-MS2_120718C	Analysis Date: 7/19/2012 12:47:00 AM	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			
Sample ID: ICV1-120718 Batch ID: R61479 TestNo: SW6020 Units: mg/L										
SampType: ICV	Run ID: ICP-MS2_120718C	Analysis Date: 7/18/2012 12:32:00 PM	Prep Date:							
Analyte Result RL SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual										
Antimony	0.0937	0.00250	0.100	0	93.7	90	110			
Arsenic	0.0986	0.00600	0.100	0	98.6	90	110			
Lead	0.0957	0.00100	0.100	0	95.6	90	110			

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

Page 4 of 10

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1207088
Project: Rockwool Ind. - Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS2_120718C

Sample ID: CCV1-120718	Batch ID: R61479	TestNo: SW6020	Units: mg/L							
SampType: CCV	Run ID: ICP-MS2_120718C	Analysis Date: 7/18/2012 2:44:00 PM	Prep Date:							
Analyte Result RL SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual										
Antimony	0.196	0.00250	0.200	0	98.0	90	110			
Arsenic	0.205	0.00600	0.200	0	103	90	110			
Lead	0.196	0.00100	0.200	0	98.1	90	110			
Sample ID: CCV2-120718	Batch ID: R61479	TestNo: SW6020	Units: mg/L							
SampType: CCV	Run ID: ICP-MS2_120718C	Analysis Date: 7/18/2012 4:34:00 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	0.210	0.00600	0.200	0	105	90	110			
Lead	0.199	0.00100	0.200	0	99.4	90	110			
Sample ID: CCV4-120718	Batch ID: R61479	TestNo: SW6020	Units: mg/L							
SampType: CCV	Run ID: ICP-MS2_120718C	Analysis Date: 7/18/2012 9:13:00 PM	Prep Date:							
Analyte Result RL SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual										
Antimony	0.205	0.00250	0.200	0	102	90	110			
Sample ID: CCV5-120718	Batch ID: R61479	TestNo: SW6020	Units: mg/L							
SampType: CCV	Run ID: ICP-MS2_120718C	Analysis Date: 7/19/2012 12:11:00 AM	Prep Date:							
Analyte Result RL SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual										
Antimony	0.208	0.00250	0.200	0	104	90	110			

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

Page 5 of 10

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1207088
Project: Rockwool Ind. - Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_120427A

Sample ID: DCS-51554-1	Batch ID: 51554	TestNo: SW6020		Units: mg/L						
SampType: DCS	Run ID: ICP-MS3_120427A	Analysis Date: 4/27/2012 3:49:00 PM Prep Date: 4/26/2012								
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.000976	0.00250	0.00100	0	97.6	60	140	0	0	0
Arsenic	0.000914	0.00600	0.00100	0	91.4	60	140	0	0	0
Lead	0.00102	0.00100	0.00100	0	102	60	140	0	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

Page 6 of 10

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1207088
Project: Rockwool Ind. - Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_120718A

The QC data in batch 52758 applies to the following samples: 1207088-20A, 1207088-21A, 1207088-22A, 1207088-23A

Sample ID:	MB-52758	Batch ID:	52758	TestNo:	SW6020A		Units:	mg/L			
SampType:	MLBK	Run ID:	ICP-MS3_120718A <th>Analysis Date:</th> <td data-cs="2" data-kind="parent">7/18/2012 5:02:00 PM</td> <td data-kind="ghost"></td> <th>Prep Date:</th> <td>7/17/2012</td>	Analysis Date:	7/18/2012 5:02:00 PM		Prep Date:	7/17/2012			
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								
Sample ID:	LCS-52758	Batch ID:	52758	TestNo:	SW6020A		Units:	mg/L			
SampType:	LCS	Run ID:	ICP-MS3_120718A <th>Analysis Date:</th> <td data-cs="2" data-kind="parent">7/18/2012 5:08:00 PM</td> <td data-kind="ghost"></td> <th>Prep Date:</th> <td>7/17/2012</td>	Analysis Date:	7/18/2012 5:08:00 PM		Prep Date:	7/17/2012			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony		0.190	0.00250	0.200	0	95.2	80	120			
Arsenic		0.195	0.00500	0.200	0	97.4	80	120			
Lead		0.196	0.00100	0.200	0	98.0	80	120			
Sample ID:	LCSD-52758	Batch ID:	52758	TestNo:	SW6020A		Units:	mg/L			
SampType:	LCSD	Run ID:	ICP-MS3_120718A <th>Analysis Date:</th> <td data-cs="2" data-kind="parent">7/18/2012 5:13:00 PM</td> <td data-kind="ghost"></td> <th>Prep Date:</th> <td>7/17/2012</td>	Analysis Date:	7/18/2012 5:13:00 PM		Prep Date:	7/17/2012			
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	2.34	15	
Arsenic		0.204	0.00500	0.200	0	102	80	120	4.42	15	
Lead		0.200	0.00100	0.200	0	100	80	120	2.17	15	
Sample ID:	1207123-03B SD	Batch ID:	52758	TestNo:	SW6020A		Units:	mg/L			
SampType:	SD	Run ID:	ICP-MS3_120718A <th>Analysis Date:</th> <td data-cs="2" data-kind="parent">7/18/2012 5:30:00 PM</td> <td data-kind="ghost"></td> <th>Prep Date:</th> <td>7/17/2012</td>	Analysis Date:	7/18/2012 5:30:00 PM		Prep Date:	7/17/2012			
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		0.00290	0.00500	0	0.00272				6.35	10	
Sample ID:	1207123-03B PDS	Batch ID:	52758	TestNo:	SW6020A		Units:	mg/L			
SampType:	PDS	Run ID:	ICP-MS3_120718A <th>Analysis Date:</th> <td data-cs="2" data-kind="parent">7/18/2012 6:26:00 PM</td> <td data-kind="ghost"></td> <th>Prep Date:</th> <td>7/17/2012</td>	Analysis Date:	7/18/2012 6:26:00 PM		Prep Date:	7/17/2012			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony		0.183	0.00250	0.200	0	91.4	80	120			
Arsenic		0.202	0.00500	0.200	0	101	80	120			
Lead		0.208	0.00100	0.200	0.00272	102	80	120			
Sample ID:	1207123-03B MS	Batch ID:	52758	TestNo:	SW6020A		Units:	mg/L			
SampType:	MS	Run ID:	ICP-MS3_120718A <th>Analysis Date:</th> <td data-cs="2" data-kind="parent">7/18/2012 6:32:00 PM</td> <td data-kind="ghost"></td> <th>Prep Date:</th> <td>7/17/2012</td>	Analysis Date:	7/18/2012 6:32:00 PM		Prep Date:	7/17/2012			
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

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

Page 7 of 10

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1207088
Project: Rockwool Ind. - Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_120718A

Sample ID: 1207123-03B MS		Batch ID: 52758		TestNo: SW6020A		Units: mg/L				
SampType: MS	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 6:32:00 PM				Prep Date: 7/17/2012				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.201	0.00250	0.200	0	101	80	120			
Arsenic	0.201	0.00500	0.200	0	101	80	120			
Lead	0.208	0.00100	0.200	0.00272	102	80	120			

Sample ID: 1207123-03B MSD		Batch ID: 52758		TestNo: SW6020A		Units: mg/L				
SampType: MSD	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 6:37:00 PM				Prep Date: 7/17/2012				
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.205	0.00250	0.200	0	102	80	120	1.67	15	
Arsenic	0.207	0.00500	0.200	0	103	80	120	2.80	15	
Lead	0.211	0.00100	0.200	0.00272	104	80	120	1.86	15	

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
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Page 8 of 10

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1207088
Project: Rockwool Ind. - Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_120718A

Sample ID: LCVL-120718	Batch ID: R61484	TestNo: SW6020A	Units: mg/L							
SampType: LCVL	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 12:39:00 PM	Prep Date:							
Analyte Result RL SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual										
Antimony	0.00187	0.00250	0.00200	0	93.4	70	130			
Arsenic	0.00457	0.00500	0.00500	0	91.5	70	130			
Lead	0.00103	0.00100	0.00100	0	103	70	130			
Sample ID: LCVL1-120718	Batch ID: R61484	TestNo: SW6020A	Units: mg/L							
SampType: LCVL	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 3:07:00 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			
Arsenic	0.00513	0.00500	0.00500	0	103	70	130			
Lead	0.00105	0.00100	0.00100	0	105	70	130			
Sample ID: LCVL2-120717	Batch ID: R61484	TestNo: SW6020A	Units: mg/L							
SampType: LCVL	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 4:39:00 PM	Prep Date:							
Analyte Result RL SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual										
Antimony	0.00205	0.00250	0.00200	0	103	70	130			
Arsenic	0.00483	0.00500	0.00500	0	96.6	70	130			
Lead	0.000965	0.00100	0.00100	0	96.5	70	130			
Sample ID: LCVL3-120718	Batch ID: R61484	TestNo: SW6020A	Units: mg/L							
SampType: LCVL	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 7:17:00 PM	Prep Date:							
Analyte Result RL SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual										
Antimony	0.00217	0.00250	0.00200	0	109	70	130			
Arsenic	0.00522	0.00500	0.00500	0	104	70	130			
Lead	0.00105	0.00100	0.00100	0	105	70	130			
Sample ID: LCVL4-120718	Batch ID: R61484	TestNo: SW6020A	Units: mg/L							
SampType: LCVL	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 8:41:00 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			
Arsenic	0.00502	0.00500	0.00500	0	100	70	130			
Lead	0.00104	0.00100	0.00100	0	104	70	130			
Sample ID: ICV1-120718	Batch ID: R61484	TestNo: SW6020	Units: mg/L							
SampType: ICV	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 12:14:00 PM	Prep Date:							
Analyte Result RL SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual										
Antimony	0.0960	0.00250	0.100	0	96.0	90	110			

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

Page 9 of 10

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1207088
Project: Rockwool Ind. - Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_120718A

Sample ID: ICV1-120718	Batch ID: R61484	TestNo:	SW6020	Units:	mg/L					
SampType: ICV	Run ID: ICP-MS3_120718A	Analysis Date:	7/18/2012 12:14:00 PM	Prep Date:						
Analyte Result RL SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual										
Arsenic	0.0967	0.00600	0.100	0	96.7	90	110			
Lead	0.0988	0.00100	0.100	0	98.8	90	110			
Sample ID: CCV1-120718	Batch ID: R61484	TestNo:	SW6020	Units:	mg/L					
SampType: CCV	Run ID: ICP-MS3_120718A	Analysis Date:	7/18/2012 2:39:00 PM	Prep Date:						
Analyte Result RL SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual										
Antimony	0.204	0.00250	0.200	0	102	90	110			
Arsenic	0.211	0.00600	0.200	0	105	90	110			
Lead	0.209	0.00100	0.200	0	104	90	110			
Sample ID: CCV2-120717	Batch ID: R61484	TestNo:	SW6020	Units:	mg/L					
SampType: CCV	Run ID: ICP-MS3_120718A	Analysis Date:	7/18/2012 4:03:00 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	0.209	0.00600	0.200	0	104	90	110			
Lead	0.206	0.00100	0.200	0	103	90	110			
Sample ID: CCV4-120718	Batch ID: R61484	TestNo:	SW6020	Units:	mg/L					
SampType: CCV	Run ID: ICP-MS3_120718A	Analysis Date:	7/18/2012 8:07:00 PM	Prep Date:						
Analyte Result RL SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual										
Antimony	0.211	0.00250	0.200	0	106	90	110			
Arsenic	0.217	0.00600	0.200	0	109	90	110			
Lead	0.216	0.00100	0.200	0	108	90	110			

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

Page 10 of 10

CLIENT: D. B. Stephens & Assoc, Inc.**Work Order:** 1207088**Project:** Rockwool Ind. - 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

APPENDIX B

LABORATORY NELAP CERTIFICATE



Texas Commission on Environmental Quality

NELAP-Recognized Laboratory Accreditation is hereby awarded to



DHL Analytical, Inc.

2300 Double Creek Drive
Round Rock, TX 78664-3801

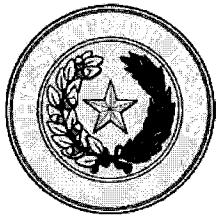
in accordance with Texas Water Code Chapter 5, Subchapter R, Title 30 Texas Administrative Code Chapter 25, and
the National Environmental Laboratory Accreditation Program.

The laboratory's scope of accreditation includes the fields of accreditation that accompany this certificate. Continued accreditation depends upon successful ongoing participation in the program. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current location(s) and accreditation status for particular methods and analyses (www.tceq.texas.gov/goto/lab). Accreditation does not imply that a product, process, system or person is approved by the Texas Commission on Environmental Quality.

Certificate Number: T104704211-12-8
Effective Date: 5/1/2012
Expiration Date: 4/30/2013

A handwritten signature in black ink that reads "Matt Wiley".

Executive Director Texas Commission on
Environmental Quality



Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation



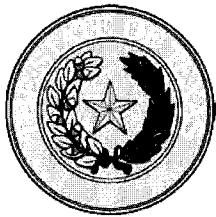
DHL Analytical, Inc.
2300 Double Creek Drive
Round Rock, TX 78664-3801

Certificate: T104704211-12-8
Expiration Date: 4/30/2013
Issue Date: 5/1/2012

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	AB	Analyte ID	Method ID
	Analyte Ignitability	TX	1780	10116606
Method	EPA 120.1	AB	Analyte ID	Method ID
	Analyte Conductivity	TX	1610	10006403
Method	EPA 1311	AB	Analyte ID	Method ID
	Analyte TCLP	TX	849	10118806
Method	EPA 1312	AB	Analyte ID	Method ID
	Analyte SPLP	TX	850	10119003
Method	EPA 150.1	AB	Analyte ID	Method ID
	Analyte pH	TX	1900	10008409
Method	EPA 160.1	AB	Analyte ID	Method ID
	Analyte Residue-filterable (TDS)	TX	1955	10009208
Method	EPA 160.2	AB	Analyte ID	Method ID
	Analyte Residue-nonfilterable (TSS)	TX	1960	10009606
Method	EPA 1664	AB	Analyte ID	Method ID
	Analyte n-Hexane Extractable Material (HEM) (O&G)	TX	1803	10127807
Method	EPA 180.1	AB	Analyte ID	Method ID
	Analyte Turbidity	TX	2055	10011606
Method	EPA 200.8	AB	Analyte ID	Method ID
	Analyte Aluminum	TX	1000	10014605
	Antimony	TX	1005	10014605
	Arsenic	TX	1010	10014605



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Matrix: Non-Potable Water

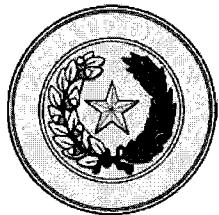
Barium	TX	1015	10014605
Beryllium	TX	1020	10014605
Boron	TX	1025	10014605
Cadmium	TX	1030	10014605
Calcium	TX	1035	10014605
Chromium	TX	1040	10014605
Cobalt	TX	1050	10014605
Copper	TX	1055	10014605
Iron	TX	1070	10014605
Lead	TX	1075	10014605
Magnesium	TX	1085	10014605
Manganese	TX	1090	10014605
Molybdenum	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

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Expiration Date:

4/30/2013

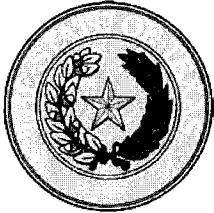
Issue Date:

5/1/2012

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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 CaCO ₃	TX	1500	10054203
Method EPA 310.1			
Analyte	AB	Analyte ID	Method ID
Alkalinity as CaCO ₃	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 SiO ₂	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



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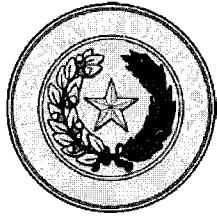
Matrix: Non-Potable Water

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



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4/30/2013

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5/1/2012

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Matrix: Non-Potable Water

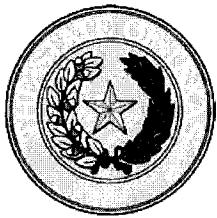
Silver	TX	1150	10156204
Sodium	TX	1155	10156204
Strontium	TX	1160	10156204
Thallium	TX	1165	10156204
Tin	TX	1175	10156204
Titanium	TX	1180	10156204
Vanadium	TX	1185	10156204
Zinc	TX	1190	10156204

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

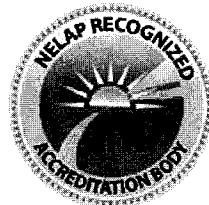
Method EPA 624

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



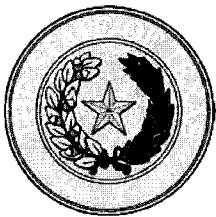
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2300 Double Creek Drive
Round Rock, TX 78664-3801

Certificate: T104704211-12-8
Expiration Date: 4/30/2013
Issue Date: 5/1/2012

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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

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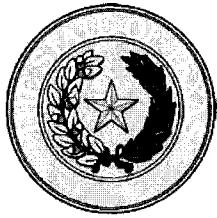
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Matrix: Non-Potable Water

Method	EPA 625	Xylene (total)	TX	5260	10107207
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



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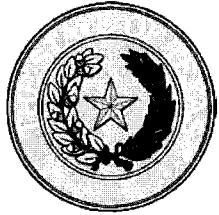
Issue Date:

5/1/2012

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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



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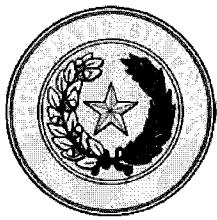
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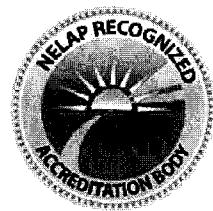
Matrix: Non-Potable Water

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



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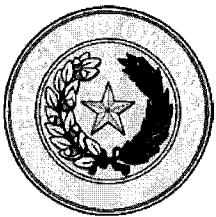
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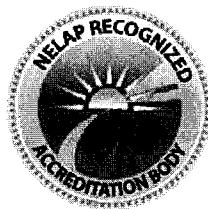
Matrix: Non-Potable Water

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 8011			
Analyte	AB	Analyte ID	Method ID
1,2-Dibromoethane (EDB, Ethylene dibromide)	TX	4585	10173009
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



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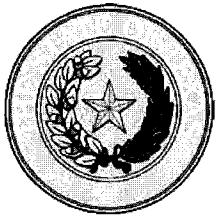
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Matrix: Non-Potable Water

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

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



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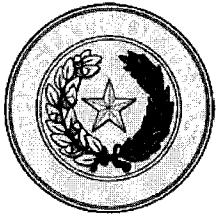
Issue Date:

5/1/2012

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Matrix: Non-Potable Water

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
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



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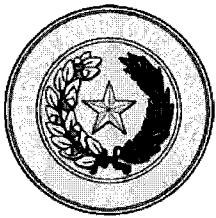
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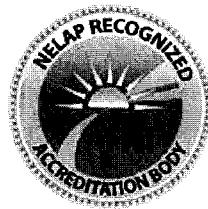
Matrix: Non-Potable Water

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
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



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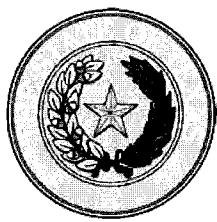
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Matrix: Non-Potable Water

Method	Method ID	Matrix	Analyte ID	Analyte
Xylene (total)	10184802	TX	5260	
Method EPA 8270				
Analyte		AB		
1,2,4,5-Tetrachlorobenzene	10185805	TX	6715	
1,2,4-Trichlorobenzene	10185805	TX	5155	
1,2-Dichlorobenzene	10185805	TX	4610	
1,2-Diphenylhydrazine	10185805	TX	6220	
1,3-Dichlorobenzene	10185805	TX	4615	
1,4-Dichlorobenzene	10185805	TX	4620	
1-Naphthylamine	10185805	TX	6425	
2,3,4,6-Tetrachlorophenol	10185805	TX	6735	
2,4,5-Trichlorophenol	10185805	TX	6835	
2,4,6-Trichlorophenol	10185805	TX	6840	
2,4-Dichlorophenol	10185805	TX	6000	
2,4-Dimethylphenol	10185805	TX	6130	
2,4-Dinitrophenol	10185805	TX	6175	
2,4-Dinitrotoluene (2,4-DNT)	10185805	TX	6185	
2,6-Dichlorophenol	10185805	TX	6005	
2,6-Dinitrotoluene (2,6-DNT)	10185805	TX	6190	
2-Chloronaphthalene	10185805	TX	5795	
2-Chlorophenol	10185805	TX	5800	
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	10185805	TX	6360	
2-Methylnaphthalene	10185805	TX	6385	
2-Methylphenol (o-Cresol)	10185805	TX	6400	
2-Naphthylamine	10185805	TX	6430	
2-Nitroaniline	10185805	TX	6460	
2-Nitrophenol	10185805	TX	6490	
2-Picoline (2-Methylpyridine)	10185805	TX	5050	
3,3'-Dichlorobenzidine	10185805	TX	5945	
3-Methylcholanthrene	10185805	TX	6355	



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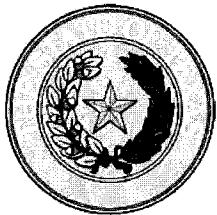
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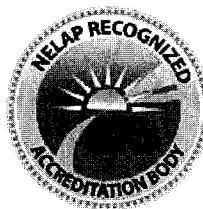
Matrix: Non-Potable Water

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
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



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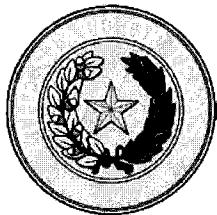
2300 Double Creek Drive
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Certificate: T104704211-12-8
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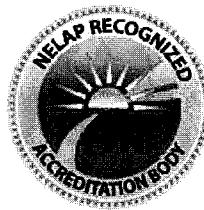
Matrix: Non-Potable Water

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
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



Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation



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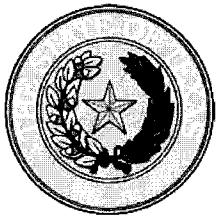
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Matrix: Non-Potable Water

Demeton-s	TX	7385	10185601
Dibenz(a,h) anthracene	TX	5895	10185805
Dibenzofuran	TX	5905	10185805
Dichlorvos (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



Texas Commission on Environmental Quality

NELAP - Recognized Laboratory Fields of Accreditation



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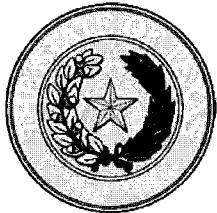
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Matrix: Non-Potable Water

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
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



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Matrix: Non-Potable Water

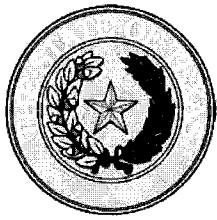
Phenacetin	TX	6610	10185805
Phenanthrene	TX	6615	10185805
Phenol	TX	6625	10185805
Phorate	TX	7985	10186002
Phosmet (Imidan)	TX	8000	10186002
Phosphamidon	TX	8005	10185805
Pronamide (Kerb)	TX	6650	10185805
Pyrene	TX	6665	10185805
Pyridine	TX	5095	10185805
Quinoline	TX	6670	10185805
Sulfotepp	TX	8155	10186002
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



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Issue Date: 5/1/2012

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Matrix: Non-Potable Water

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
Pentaerythritoltetranitrate (PETN)	TX	9558	10189807
RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine)	TX	9432	10189807

Method EPA 9014

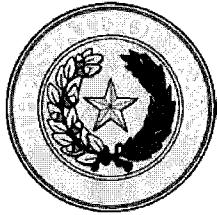
Analyte	AB	Analyte ID	Method ID
Amenable cyanide	TX	1510	10193803
Total Cyanide	TX	1635	10193803

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



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Matrix: Non-Potable Water

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

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	20002408

Method SM 2310 B (4a)

Analyte	AB	Analyte ID	Method ID
Acidity, as CaCO ₃	TX	1500	20002806

Method SM 2320 B

Analyte	AB	Analyte ID	Method ID
Alkalinity as CaCO ₃	TX	1505	20003003

Method SM 2340 B

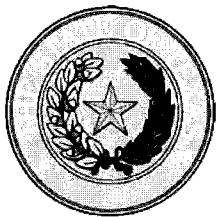
Analyte	AB	Analyte ID	Method ID
Total hardness as CaCO ₃	TX	1755	20003401

Method SM 2510 B

Analyte	AB	Analyte ID	Method ID
Conductivity	TX	1610	20003809

Method SM 2540 C

Analyte	AB	Analyte ID	Method ID



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NELAP - Recognized Laboratory Fields of Accreditation



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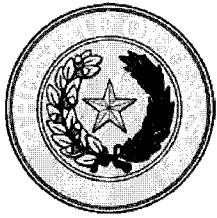
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Matrix: Non-Potable Water

Residue-filterable (TDS)	TX	1955	20004404
Method SM 2540 D			
Analyte	AB	Analyte ID	Method ID
Residue-nonfilterable (TSS)	TX	1960	20004802
Method SM 3500-Cr D			
Analyte	AB	Analyte ID	Method ID
Chromium	TX	1040	20009001
Method SM 4500-CN⁻ E			
Analyte	AB	Analyte ID	Method ID
Total Cyanide	TX	1635	20021209
Method SM 4500-CN⁻ G			
Analyte	AB	Analyte ID	Method ID
Amenable cyanide	TX	1510	20021607
Method SM 4500-H+ B			
Analyte	AB	Analyte ID	Method ID
pH	TX	1900	20016404
Method SM 4500-NH3 F			
Analyte	AB	Analyte ID	Method ID
Ammonia as N	TX	1515	20023001
Method SM 4500-P E			
Analyte	AB	Analyte ID	Method ID
Orthophosphate as P	TX	1870	20025803
Phosphorus	TX	1910	20025803
Method SM 4500-S2⁻ D			
Analyte	AB	Analyte ID	Method ID
Sulfide	TX	2005	20125400
Method SM 4500-SiO2 D			
Analyte	AB	Analyte ID	Method ID
Silica as SiO2	TX	1990	20018206
Method SM 5220 D			
Analyte	AB	Analyte ID	Method ID
Chemical oxygen demand (COD)	TX	1565	20027809



Texas Commission on Environmental Quality

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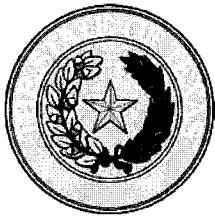
Matrix: Non-Potable Water

Method SM 5310 C

Analyte	AB	Analyte ID	Method ID
Total Organic Carbon (TOC)	TX	2040	20028200

Method TCEQ 1005

Analyte	AB	Analyte ID	Method ID
Total Petroleum Hydrocarbons (TPH)	TX	2050	90019208



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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

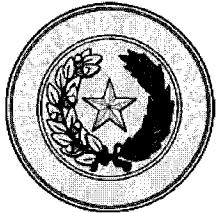
Analyte	AB	Analyte ID	Method ID
TCLP	TX	849	10118806

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



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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 CaCO ₃	TX	1505	10054805

Method EPA 350.3

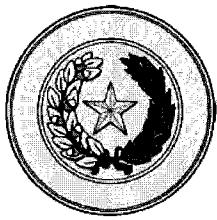
Analyte	AB	Analyte ID	Method ID
Ammonia as N	TX	1515	10064401

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



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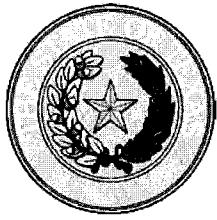
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Matrix: Solid & Chemical Materials

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



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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

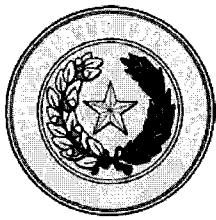
Analyte	AB	Analyte ID	Method ID
Diesel range organics (DRO)	TX	9369	10173203
Ethylene glycol	TX	4785	10173203
Gasoline range organics (GRO)	TX	9408	10173203
Propylene Glycol	TX	6657	10173203

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

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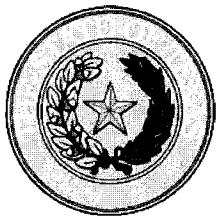
Certificate: T104704211-12-8
Expiration Date: 4/30/2013
Issue Date: 5/1/2012

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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



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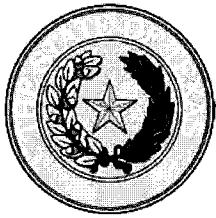
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Matrix: Solid & Chemical Materials

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



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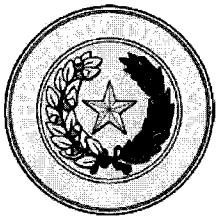
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Matrix: Solid & Chemical Materials

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



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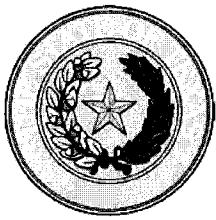
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Matrix: Solid & Chemical Materials

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



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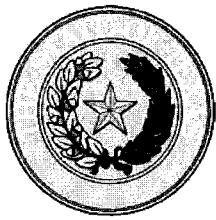
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Matrix: Solid & Chemical Materials

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



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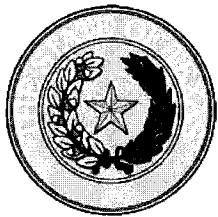
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Matrix: Solid & Chemical Materials

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
Chlорfenvinphos	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



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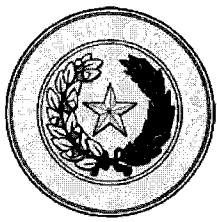
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Matrix: Solid & Chemical Materials

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



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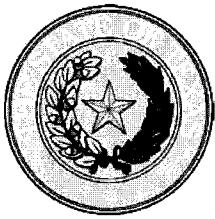
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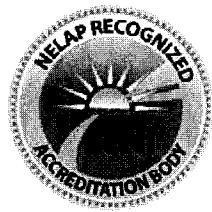
Matrix: Solid & Chemical Materials

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
Phacetin	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
Sulfotep	TX	8155	10185203
Terbufos	TX	8185	10185805



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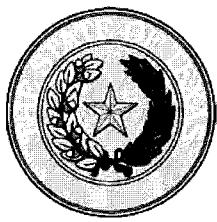
Tetrachlorvinphos (Stirophos, Gardona)	TX	8197	10186002
Tetraethyl pyrophosphate (TEPP)	TX	8210	10185407
Toxaphene (Chlorinated camphene)	TX	8250	10185203

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

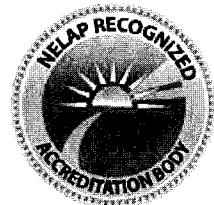
Method EPA 8330

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



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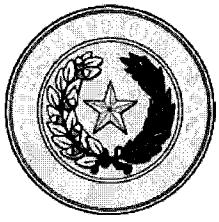
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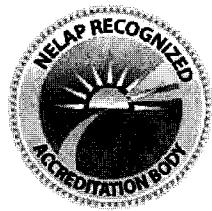
Matrix: Solid & Chemical Materials

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 CaCO ₃	TX	1505	20003003
Method SM 2510 B			
Analyte	AB	Analyte ID	Method ID
Conductivity	TX	1610	20003809
Method SSA/ASA Part 3:14			
Analyte	AB	Analyte ID	Method ID
Conductivity	TX	1610	SSA/ASA Pt 3:14



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Certificate:

T104704211-12-8

Expiration Date:

4/30/2013

Issue Date:

5/1/2012

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



July 23, 2012

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

FAX

Order No.: 1207088

RE: Rockwool Ind. - Belton, TX

Dear Paul Kirby:

DHL Analytical received 23 sample(s) on 7/12/2012 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,

A handwritten signature in black ink that reads "John DuPont".

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-12-8



Table of Contents

Miscellaneous Documents	3
CaseNarrative 1207088	9
WorkOrderSampleSummary 1207088	10
PrepDatesReport 1207088	11
AnalyticalDatesReport 1207088	12
Analytical Report 1207088	13
AnalyticalQCSummaryReport 1207088	36
MQLSummaryReport 1207088	46
ICP-MS2 Raw Data	47
ICP-MS3 Raw Data	123



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 55861

CHAIN-OF-CUSTODY

CLIENT: Daniel B. Stephens + Associates
 ADDRESS: 4030 W. Braker Lane, Ste. 325 Austin, TX 78759
 PHONE: 512-821-2765 FAX/E-MAIL:
 DATA REPORTED TO: William Cambalin
 ADDITIONAL REPORT COPIES TO:

DATE: 7-12-12

PAGE 1 OF 2
1207088

PO #: _____ DHL WORK ORDER #:

PROJECT LOCATION OR NAME: ft Rockwool IND. - Belton, TX

CLNT PROJECT #: ES12. AIRS.11 COLLECTOR: Bud Shirley

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			ANALYSES	FIELD NOTES
							HCl	HNO ₃	H ₂ SO ₄ <input type="checkbox"/>	NaOH <input type="checkbox"/>	
MW-7	01	7-10-12	1725	W	Plastic	1	X	X			
MW-9	02	7-10-12	1535	W	Plastic	1	X	X			
MW-10	03	7-10-12	1215	W	Plastic	1	X	X			
MW-11	04	7-10-12	1125	W	Plastic	1	X	X			
MW-17	05	7-10-12	1018	W	Plastic	1	X	X			
MW-19	06	7-11-12	0959	W	Plastic	1	X	X			
MW-24-90	07	7-11-12	1112	W	Plastic	1	X	X			
MW-27-90	08	7-11-12	0823	W	Plastic	1	X	X			
MW-28-90	09	7-11-12	0810	W	Plastic	1	X	X			
MW-29-90	10	7-11-12	0755	W	Plastic	1	X	X			
MW-30-90	11	7-11-12	1200	W	Plastic	1	X	X			
MW-33-90	12	7-10-12	1135	W	Plastic	1	X	X			
MW-34-90	13	7-10-12	1432	W	Plastic	1	X	X			
DUP-2	14	7-10-12	1315	W	Plastic	1	X	X			
ER-1	15	7-10-12	1910	W	Plastic	1	X	X			
TOTAL											

RELINQUISHED BY: (Signature)

RELINQUISHED BY: (Signature)

RELINQUISHED BY: (Signature)

DATE/TIME

DATE/TIME

DATE/TIME

RECEIVED BY: (Signature)

RECEIVED BY: (Signature)

RECEIVED BY: (Signature)

TURN AROUND TIME

RUSH CALL FIRST

1 DAY CALL FIRST

2 DAY

NORMAL

OTHER

LABORATORY USE ONLY:

RECEIVING TEMP: 37 THERM #: 57

CUSTODY SEALS: BROKEN INTACT NOT USED

CARRIER BILL #: _____

APC DELIVERY

HAND DELIVERED

DHL DISPOSAL @ \$5.00 each

Return



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



No 55862

CHAIN-OF-CUSTODY

CLIENT: Daniel B. Stephens & Associates
 ADDRESS: 4030 W. Braker Lane, Ste. 325, Austin, TX 78759
 PHONE: 512-821-82765 FAX/E-MAIL: _____
 DATA REPORTED TO: William Gamblin
 ADDITIONAL REPORT COPIES TO: _____

DATE: 7-12-12 PAGE 2 OF 2
 PO #: _____ DHL WORK ORDER #: 1207088
 PROJECT LOCATION OR NAME: Rockwool Ind. - Belton, TX
 CLIENT PROJECT #: ES12.AIRS.11 COLLECTOR: Bud Shirley

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 HNO₃ NaOH □
 ICE UNPRESERVED

ANALYSES

BTEX □ MTBE □ INMETHOD 80211
 TPH 1005 □ TPH 1006 □ VOC 624 □ DRO/METHOD 8106 □
 GRO/METHOD 80151 □ HOLD 1006 □ VOC 8260/8035 □
 VOC 8280 □ VOC 8280/PCB □ SVOC 6250
 SVOC 8220 □ PAH 8270 □ HOLD PCB □ 8270 RESTD
 8081 RESTD □ 608 RESTD/PCB □ 8270 PCB □
 8270 O-P PEST □ 8082 PCB □ 8270 PERCHLORATE □
 8321 HER8 □ 8330 EXPL □ METALS 200.8 □ DISS. METALS □
 MEALS 6000 □ METALS 200.8 □ ALKALINITY □
 PH □ HEX CHROM □ ANIONS □
 CHLORIDE □ VOC □ PESTO □
 TCLP-METALS □ RCR 8 □ HERB □
 TCLP-SVOC □ TDS □ FLASHPOINT □
 RCR □ TOX □ TSS □ % MOISTURE □
 TDS □ TSS □ TX-1 □ PBG □ CYANIDE □

FIELD NOTES

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO ₃	NaOH □	ICE	UNPRESERVED
MW-20	16	7-11-12	1248	Water	Plastic	1	X	X			
MW-21	17	7-11-12	1504	Water	Plastic	1	X	X			
MW-22	18	7-11-12	1359	Water	Plastic	1	X	X			
MW-35-90	19	7-11-12	1740	Water	Plastic	1	X	X			
MW-37-90	20	7-11-12	1638	Water	Plastic	1	X	X			
MW-38-90	21	7-11-12	1546	Water	Plastic	1	X	X			
DUP-1	22	7-11-12	1532	water	Plastic	1	X	X			
ER-2	23	7-11-12	1721	Water	Plastic	1	X	X			

~~TEMPERATURE~~

TOTAL

RELINQUISHED BY: (Signature)

B. Shirley

DATE/TIME

7-12-12 10935

RECEIVED BY: (Signature)

J. Smith

RELINQUISHED BY: (Signature)

DATE/TIME

7-12-12 10935

RECEIVED BY: (Signature)

J. Smith

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: 3.7 THERM #: 57
 CUSTODY SEALS: BROKEN INTACT NOT USED
 CARRIER BILL #: _____
 APC DELIVERY
 HAND DELIVERED

DHL Analytical

Sample Receipt Checklist

Client Name D. B. Stephens & Assoc, Inc.

Date Received: 7/12/2012

Work Order Number 1207088

Received by JB

Checklist completed by:


Signature _____ Date 7/12/2012

Reviewed by:


Initials SS Date 7/12/2012

Carrier name: Hand Delivered

Shipping container/coolier in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/coolier?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	3.7 °C
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>

Adjusted? ND

Checked by JB

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 Ind. - Belton, TX		Date: 7/23/12					
Reviewer Name: Carlos Castro		Laboratory Work Order: 1207088					
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
R2	OI	Sample and Quality Control (QC) Identification					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
R3	OI	2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
		Test Reports					
R4		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			
R5	OI	2) Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			
		Test Reports/Summary Forms for Blank Samples					
R6	OI	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				
R7	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				
R8	OI	6) Was the LCSD RPD within QC limits (if applicable)?	X				
		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				
R9	OI	3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		4) Were MS/MSD RPDs within laboratory QC limits?	X				
		Analytical Duplicate Data					
R8		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				
R10	OI	3) Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
		Other Problems/Anomalies					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?		X			
R10		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 Ind. - Belton, TX	Date:	7/23/12				
Reviewer Name:	Carlos Castro	Laboratory Work Order:	1207088				
# 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 (DCS results can be found with the Miscellaneous Documents) 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 17-20, 2011. 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

07/23/12

Date

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Lab Order: 1207088

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 7/12/12. A total of 23 samples were received. The samples arrived in good condition and were properly packaged.

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Lab Order: 1207088

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1207088-01	MW-7		07/10/12 05:25 PM	7/12/2012
1207088-02	MW-9		07/10/12 03:35 PM	7/12/2012
1207088-03	MW-10		07/10/12 12:15 PM	7/12/2012
1207088-04	MW-11		07/10/12 11:25 AM	7/12/2012
1207088-05	MW-17		07/10/12 10:18 AM	7/12/2012
1207088-06	MW-19		07/11/12 09:59 AM	7/12/2012
1207088-07	MW-24-90		07/11/12 11:12 AM	7/12/2012
1207088-08	MW-27-90		07/11/12 08:23 AM	7/12/2012
1207088-09	MW-28-90		07/11/12 08:10 AM	7/12/2012
1207088-10	MW-29-90		07/11/12 07:55 AM	7/12/2012
1207088-11	MW-30-90		07/11/12 12:00 PM	7/12/2012
1207088-12	MW-33-90		07/10/12 04:35 PM	7/12/2012
1207088-13	MW-34-90		07/10/12 02:32 PM	7/12/2012
1207088-14	DUP-2		07/10/12 01:15 PM	7/12/2012
1207088-15	ER-1		07/10/12 07:10 PM	7/12/2012
1207088-16	MW-20		07/11/12 12:48 PM	7/12/2012
1207088-17	MW-21		07/11/12 03:04 PM	7/12/2012
1207088-18	MW-22		07/11/12 01:57 PM	7/12/2012
1207088-19	MW-35-90		07/11/12 05:40 PM	7/12/2012
1207088-20	MW-37-90		07/11/12 04:38 PM	7/12/2012
1207088-21	MW-38-90		07/11/12 03:46 PM	7/12/2012
1207088-22	DUP-1		07/11/12 03:32 PM	7/12/2012
1207088-23	ER-2		07/11/12 05:21 PM	7/12/2012

Lab Order: 1207088
Client: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1207088-01A	MW-7	07/10/12 05:25 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-02A	MW-9	07/10/12 03:35 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-03A	MW-10	07/10/12 12:15 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-04A	MW-11	07/10/12 11:25 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-05A	MW-17	07/10/12 10:18 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-06A	MW-19	07/11/12 09:59 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-07A	MW-24-90	07/11/12 11:12 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-08A	MW-27-90	07/11/12 08:23 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-09A	MW-28-90	07/11/12 08:10 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-10A	MW-29-90	07/11/12 07:55 AM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-11A	MW-30-90	07/11/12 12:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-12A	MW-33-90	07/10/12 04:35 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-13A	MW-34-90	07/10/12 02:32 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-14A	DUP-2	07/10/12 01:15 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-15A	ER-1	07/10/12 07:10 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-16A	MW-20	07/11/12 12:48 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-17A	MW-21	07/11/12 03:04 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-18A	MW-22	07/11/12 01:57 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-19A	MW-35-90	07/11/12 05:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
	MW-35-90	07/11/12 05:40 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52757
1207088-20A	MW-37-90	07/11/12 04:38 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52758
1207088-21A	MW-38-90	07/11/12 03:46 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52758
1207088-22A	DUP-1	07/11/12 03:32 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52758
1207088-23A	ER-2	07/11/12 05:21 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	07/17/12 09:05 AM	52758

Lab Order: 1207088
Client: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1207088-01A	MW-7	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 01:33 PM	ICP-MS2_120718C
1207088-02A	MW-9	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 01:39 PM	ICP-MS2_120718C
1207088-03A	MW-10	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 01:45 PM	ICP-MS2_120718C
1207088-04A	MW-11	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 01:50 PM	ICP-MS2_120718C
1207088-05A	MW-17	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 01:56 PM	ICP-MS2_120718C
1207088-06A	MW-19	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 02:02 PM	ICP-MS2_120718C
1207088-07A	MW-24-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 02:08 PM	ICP-MS2_120718C
1207088-08A	MW-27-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 02:14 PM	ICP-MS2_120718C
1207088-09A	MW-28-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 02:20 PM	ICP-MS2_120718C
1207088-10A	MW-29-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 03:30 PM	ICP-MS2_120718C
1207088-11A	MW-30-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 03:36 PM	ICP-MS2_120718C
1207088-12A	MW-33-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 03:43 PM	ICP-MS2_120718C
1207088-13A	MW-34-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 03:52 PM	ICP-MS2_120718C
1207088-14A	DUP-2	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 03:58 PM	ICP-MS2_120718C
1207088-15A	ER-1	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 04:04 PM	ICP-MS2_120718C
1207088-16A	MW-20	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 04:10 PM	ICP-MS2_120718C
1207088-17A	MW-21	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 04:16 PM	ICP-MS2_120718C
1207088-18A	MW-22	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 04:22 PM	ICP-MS2_120718C
1207088-19A	MW-35-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	1	07/18/12 04:28 PM	ICP-MS2_120718C
	MW-35-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52757	5	07/18/12 11:48 PM	ICP-MS2_120718C
1207088-20A	MW-37-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52758	1	07/18/12 07:45 PM	ICP-MS3_120718A
1207088-21A	MW-38-90	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52758	1	07/18/12 07:51 PM	ICP-MS3_120718A
1207088-22A	DUP-1	Aqueous	SW6020A	Trace Metals: ICP-MS - Water	52758	1	07/18/12 07:56 PM	ICP-MS3_120718A
1207088-23A	ER-2	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	52758	1	07/18/12 08:02 PM	ICP-MS3_120718A

DHL Analytical**Date:** 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-7
Lab ID: 1207088-01
Collection Date: 07/10/12 05:25 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
			SW6020A				Analyst: SW
Antimony	0.00153	0.000800	0.00250	J	mg/L	1	07/18/12 01:33 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	07/18/12 01:33 PM
Lead	0.000690	0.000300	0.00100	J	mg/L	1	07/18/12 01:33 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**Date:** 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-9
Lab ID: 1207088-02
Collection Date: 07/10/12 03:35 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
		SW6020A					Analyst: SW
Antimony	0.249	0.000800	0.00250		mg/L	1	07/18/12 01:39 PM
Arsenic	0.0810	0.00200	0.00500		mg/L	1	07/18/12 01:39 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	07/18/12 01:39 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**Date:** 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-10
Lab ID: 1207088-03
Collection Date: 07/10/12 12:15 PM
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	07/18/12 01:45 PM
Arsenic	0.00302	0.00200	0.00500	J	mg/L	1	07/18/12 01:45 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	07/18/12 01:45 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

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc. **Client Sample ID:** MW-11
Project: Rockwool Ind. - Belton, TX **Lab ID:** 1207088-04
Project No: ES12.AIRS.11 **Collection Date:** 07/10/12 11:25 AM
Lab Order: 1207088 **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	07/18/12 01:50 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	07/18/12 01:50 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	07/18/12 01:50 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**Date:** 23-Jul-12

CLIENT:	D. B. Stephens & Assoc, Inc.	Client Sample ID:	MW-17
Project:	Rockwool Ind. - Belton, TX	Lab ID:	1207088-05
Project No:	ES12.AIRS.11	Collection Date:	07/10/12 10:18 AM
Lab Order:	1207088	Matrix:	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
			SW6020A				Analyst: SW
Antimony	0.00828	0.000800	0.00250		mg/L	1	07/18/12 01:56 PM
Arsenic	0.00595	0.00200	0.00500		mg/L	1	07/18/12 01:56 PM
Lead	0.000705	0.000300	0.00100	J	mg/L	1	07/18/12 01:56 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**Date:** 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-19
Lab ID: 1207088-06
Collection Date: 07/11/12 09:59 AM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
			SW6020A				Analyst: SW
Antimony	0.00140	0.000800	0.00250	J	mg/L	1	07/18/12 02:02 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	07/18/12 02:02 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	07/18/12 02:02 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**Date:** 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-24-90
Lab ID: 1207088-07
Collection Date: 07/11/12 11:12 AM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
		SW6020A					Analyst: SW
Antimony	0.00352	0.000800	0.00250		mg/L	1	07/18/12 02:08 PM
Arsenic	0.00215	0.00200	0.00500	J	mg/L	1	07/18/12 02:08 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	07/18/12 02:08 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**Date:** 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-27-90
Lab ID: 1207088-08
Collection Date: 07/11/12 08:23 AM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
		SW6020A					Analyst: SW
Antimony	0.0717	0.000800	0.00250		mg/L	1	07/18/12 02:14 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	07/18/12 02:14 PM
Lead	0.000480	0.000300	0.00100	J	mg/L	1	07/18/12 02:14 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**Date:** 23-Jul-12

CLIENT:	D. B. Stephens & Assoc, Inc.	Client Sample ID:	MW-28-90
Project:	Rockwool Ind. - Belton, TX	Lab ID:	1207088-09
Project No:	ES12.AIRS.11	Collection Date:	07/11/12 08:10 AM
Lab Order:	1207088	Matrix:	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
			SW6020A				Analyst: SW
Antimony	0.0299	0.000800	0.00250		mg/L	1	07/18/12 02:20 PM
Arsenic	0.0689	0.00200	0.00500		mg/L	1	07/18/12 02:20 PM
Lead	0.000735	0.000300	0.00100	J	mg/L	1	07/18/12 02:20 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**Date:** 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-29-90
Lab ID: 1207088-10
Collection Date: 07/11/12 07:55 AM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
		SW6020A					Analyst: SW
Antimony	0.0283	0.000800	0.00250		mg/L	1	07/18/12 03:30 PM
Arsenic	0.00503	0.00200	0.00500		mg/L	1	07/18/12 03:30 PM
Lead	0.00231	0.000300	0.00100		mg/L	1	07/18/12 03:30 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**Date:** 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-30-90
Lab ID: 1207088-11
Collection Date: 07/11/12 12:00 PM
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	07/18/12 03:36 PM
Arsenic	0.00269	0.00200	0.00500	J	mg/L	1	07/18/12 03:36 PM
Lead	0.0113	0.000300	0.00100		mg/L	1	07/18/12 03:36 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

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-33-90
Lab ID: 1207088-12
Collection Date: 07/10/12 04:35 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
		SW6020A					Analyst: SW
Antimony	0.159	0.000800	0.00250		mg/L	1	07/18/12 03:43 PM
Arsenic	0.0312	0.00200	0.00500		mg/L	1	07/18/12 03:43 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	07/18/12 03:43 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**Date:** 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-34-90
Lab ID: 1207088-13
Collection Date: 07/10/12 02:32 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
		SW6020A					Analyst: SW
Antimony	0.323	0.000800	0.00250		mg/L	1	07/18/12 03:52 PM
Arsenic	0.391	0.00200	0.00500		mg/L	1	07/18/12 03:52 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	07/18/12 03:52 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

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: DUP-2
Lab ID: 1207088-14
Collection Date: 07/10/12 01:15 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
		SW6020A					Analyst: SW
Antimony	0.318	0.000800	0.00250		mg/L	1	07/18/12 03:58 PM
Arsenic	0.378	0.00200	0.00500		mg/L	1	07/18/12 03:58 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	07/18/12 03:58 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**Date:** 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: ER-1
Lab ID: 1207088-15
Collection Date: 07/10/12 07:10 PM
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	07/18/12 04:04 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	07/18/12 04:04 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	07/18/12 04:04 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**Date:** 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-20
Lab ID: 1207088-16
Collection Date: 07/11/12 12:48 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
			SW6020A				Analyst: SW
Antimony	0.00236	0.000800	0.00250	J	mg/L	1	07/18/12 04:10 PM
Arsenic	0.00267	0.00200	0.00500	J	mg/L	1	07/18/12 04:10 PM
Lead	0.000420	0.000300	0.00100	J	mg/L	1	07/18/12 04:10 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

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-21
Lab ID: 1207088-17
Collection Date: 07/11/12 03:04 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
		SW6020A					Analyst: SW
Antimony	0.303	0.000800	0.00250		mg/L	1	07/18/12 04:16 PM
Arsenic	0.00921	0.00200	0.00500		mg/L	1	07/18/12 04:16 PM
Lead	0.00267	0.000300	0.00100		mg/L	1	07/18/12 04:16 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

Date: 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-22
Lab ID: 1207088-18
Collection Date: 07/11/12 01:57 PM
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	07/18/12 04:22 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	07/18/12 04:22 PM
Lead	0.00368	0.000300	0.00100		mg/L	1	07/18/12 04:22 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**Date:** 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-35-90
Lab ID: 1207088-19
Collection Date: 07/11/12 05:40 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
		SW6020A					Analyst: SW
Antimony	0.526	0.00400	0.0125		mg/L	5	07/18/12 11:48 PM
Arsenic	0.0904	0.00200	0.00500		mg/L	1	07/18/12 04:28 PM
Lead	0.0113	0.000300	0.00100		mg/L	1	07/18/12 04:28 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**Date:** 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-37-90
Lab ID: 1207088-20
Collection Date: 07/11/12 04:38 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
			SW6020A				Analyst: SW
Antimony	0.00105	0.000800	0.00250	J	mg/L	1	07/18/12 07:45 PM
Arsenic	0.0325	0.00200	0.00500		mg/L	1	07/18/12 07:45 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	07/18/12 07:45 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**Date:** 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: MW-38-90
Lab ID: 1207088-21
Collection Date: 07/11/12 03:46 PM
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	07/18/12 07:51 PM
Arsenic	0.00681	0.00200	0.00500		mg/L	1	07/18/12 07:51 PM
Lead	0.00354	0.000300	0.00100		mg/L	1	07/18/12 07:51 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**Date:** 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: DUP-1
Lab ID: 1207088-22
Collection Date: 07/11/12 03:32 PM
Matrix: AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER							
		SW6020A					Analyst: SW
Antimony	0.428	0.000800	0.00250		mg/L	1	07/18/12 07:56 PM
Arsenic	0.00545	0.00200	0.00500		mg/L	1	07/18/12 07:56 PM
Lead	0.00100	0.000300	0.00100		mg/L	1	07/18/12 07:56 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**Date:** 23-Jul-12

CLIENT: D. B. Stephens & Assoc, Inc.
Project: Rockwool Ind. - Belton, TX
Project No: ES12.AIRS.11
Lab Order: 1207088

Client Sample ID: ER-2
Lab ID: 1207088-23
Collection Date: 07/11/12 05:21 PM
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	07/18/12 08:02 PM
Arsenic	<0.00200	0.00200	0.00500		mg/L	1	07/18/12 08:02 PM
Lead	<0.000300	0.000300	0.00100		mg/L	1	07/18/12 08:02 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

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1207088
Project: Rockwool Ind. - Belton, TX

ANALYTICAL QC SUMMARY REPORT**RunID: ICP-MS2_120511A**

Sample ID: DCS-51554-1	Batch ID: 51554	TestNo: SW6020	Units: mg/L							
SampType: DCS	Run ID: ICP-MS2_120511A	Analysis Date: 5/11/2012 12:27:00 PM	Prep Date: 4/26/2012							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00110	0.00250	0.00100	0	110	60	140	0	0	
Arsenic	0.000934	0.00600	0.00100	0	93.4	60	140	0	0	
Lead	0.000981	0.00100	0.00100	0	98.1	60	140	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

Page 1 of 10

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1207088
Project: Rockwool Ind. - Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS2_120718C

The QC data in batch 52757 applies to the following samples: 1207088-01A, 1207088-02A, 1207088-03A, 1207088-04A, 1207088-05A, 1207088-06A, 1207088-07A, 1207088-08A, 1207088-09A, 1207088-10A, 1207088-11A, 1207088-12A, 1207088-13A, 1207088-14A, 1207088-15A, 1207088-16A, 1207088-17A, 1207088-18A, 1207088-19A

Sample ID: MB-52757	Batch ID: 52757	TestNo: SW6020A	Units: mg/L							
SampType: MBLK	Run ID: ICP-MS2_120718C	Analysis Date: 7/18/2012 12:57:00 PM	Prep Date: 7/17/2012							
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								

Sample ID: LCS-52757	Batch ID: 52757	TestNo: SW6020A	Units: mg/L							
SampType: LCS	Run ID: ICP-MS2_120718C	Analysis Date: 7/18/2012 1:03:00 PM	Prep Date: 7/17/2012							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.188	0.00250	0.200	0	94.0	80	120			
Arsenic	0.196	0.00500	0.200	0	98.2	80	120			
Lead	0.193	0.00100	0.200	0	96.4	80	120			

Sample ID: LCSD-52757	Batch ID: 52757	TestNo: SW6020A	Units: mg/L							
SampType: LCSD	Run ID: ICP-MS2_120718C	Analysis Date: 7/18/2012 1:09:00 PM	Prep Date: 7/17/2012							
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.188	0.00250	0.200	0	93.8	80	120	0.160	15	
Arsenic	0.197	0.00500	0.200	0	98.4	80	120	0.203	15	
Lead	0.193	0.00100	0.200	0	96.5	80	120	0.156	15	

Sample ID: 1207123-01E SD	Batch ID: 52757	TestNo: SW6020A	Units: mg/L							
SampType: SD	Run ID: ICP-MS2_120718C	Analysis Date: 7/18/2012 1:27:00 PM	Prep Date: 7/17/2012							
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	0.000329				0	10	

Sample ID: 1207123-01E PDS	Batch ID: 52757	TestNo: SW6020A	Units: mg/L							
SampType: PDS	Run ID: ICP-MS2_120718C	Analysis Date: 7/18/2012 2:26:00 PM	Prep Date: 7/17/2012							
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	0.194	0.00500	0.200	0	96.9	80	120			
Lead	0.192	0.00100	0.200	0.000329	95.8	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

Page 2 of 10

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1207088
Project: Rockwool Ind. - Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS2_120718C

Sample ID: 1207123-01E MS	Batch ID: 52757	TestNo:	SW6020A	Units:	mg/L					
SampType: MS	Run ID: ICP-MS2_120718C	Analysis Date: 7/18/2012 2:32:00 PM			Prep Date: 7/17/2012					
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.190	0.00250	0.200	0	95.2	80	120			
Arsenic	0.196	0.00500	0.200	0	98.2	80	120			
Lead	0.189	0.00100	0.200	0.000329	94.5	80	120			

Sample ID: 1207123-01E MSD	Batch ID: 52757	TestNo:	SW6020A	Units:	mg/L					
SampType: MSD	Run ID: ICP-MS2_120718C	Analysis Date: 7/18/2012 2:38:00 PM			Prep Date: 7/17/2012					
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.193	0.00250	0.200	0	96.5	80	120	1.30	15	
Arsenic	0.198	0.00500	0.200	0	99.0	80	120	0.812	15	
Lead	0.196	0.00100	0.200	0.000329	97.7	80	120	3.32	15	

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

Page 3 of 10

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1207088
Project: Rockwool Ind. - Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS2_120718C

Sample ID:	LCVL-120718	Batch ID:	R61479	TestNo:	SW6020A		Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS2_120718C	Analysis Date:	7/18/2012 12:44:00 PM		Prep Date:				
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony		0.00185	0.00250	0.00200	0	92.7	70	130			
Arsenic		0.00507	0.00500	0.00500	0	101	70	130			
Lead		0.000953	0.00100	0.00100	0	95.3	70	130			
Sample ID:	LCVL1-120718	Batch ID:	R61479	TestNo:	SW6020A		Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS2_120718C	Analysis Date:	7/18/2012 3:07:00 PM		Prep Date:				
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony		0.00245	0.00250	0.00200	0	122	70	130			
Arsenic		0.00516	0.00500	0.00500	0	103	70	130			
Lead		0.000949	0.00100	0.00100	0	94.9	70	130			
Sample ID:	LCVL2-120718	Batch ID:	R61479	TestNo:	SW6020A		Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS2_120718C	Analysis Date:	7/18/2012 5:09:00 PM		Prep Date:				
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony		0.00212	0.00250	0.00200	0	106	70	130			
Arsenic		0.00519	0.00500	0.00500	0	104	70	130			
Lead		0.000938	0.00100	0.00100	0	93.8	70	130			
Sample ID:	LCVL4-120718	Batch ID:	R61479	TestNo:	SW6020A		Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS2_120718C	Analysis Date:	7/18/2012 9:49:00 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			
Sample ID:	LCVL5-120718	Batch ID:	R61479	TestNo:	SW6020A		Units:	mg/L			
SampType:	LCVL	Run ID:	ICP-MS2_120718C	Analysis Date:	7/19/2012 12:47:00 AM		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			
Sample ID:	ICV1-120718	Batch ID:	R61479	TestNo:	SW6020		Units:	mg/L			
SampType:	ICV	Run ID:	ICP-MS2_120718C	Analysis Date:	7/18/2012 12:32:00 PM		Prep Date:				
Analyte		Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony		0.0937	0.00250	0.100	0	93.7	90	110			
Arsenic		0.0986	0.00600	0.100	0	98.6	90	110			
Lead		0.0957	0.00100	0.100	0	95.6	90	110			

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

Page 4 of 10

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1207088
Project: Rockwool Ind. - Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS2_120718C

Sample ID: CCV1-120718	Batch ID: R61479	TestNo: SW6020			Units:	mg/L				
SampType: CCV	Run ID: ICP-MS2_120718C	Analysis Date: 7/18/2012 2:44:00 PM			Prep Date:					
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.196	0.00250	0.200	0	98.0	90	110			
Arsenic	0.205	0.00600	0.200	0	103	90	110			
Lead	0.196	0.00100	0.200	0	98.1	90	110			

Sample ID: CCV2-120718	Batch ID: R61479	TestNo: SW6020			Units:	mg/L				
SampType: CCV	Run ID: ICP-MS2_120718C	Analysis Date: 7/18/2012 4:34:00 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	0.210	0.00600	0.200	0	105	90	110			
Lead	0.199	0.00100	0.200	0	99.4	90	110			

Sample ID: CCV4-120718	Batch ID: R61479	TestNo: SW6020			Units:	mg/L				
SampType: CCV	Run ID: ICP-MS2_120718C	Analysis Date: 7/18/2012 9:13:00 PM			Prep Date:					
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.205	0.00250	0.200	0	102	90	110			

Sample ID: CCV5-120718	Batch ID: R61479	TestNo: SW6020			Units:	mg/L				
SampType: CCV	Run ID: ICP-MS2_120718C	Analysis Date: 7/19/2012 12:11:00 AM			Prep Date:					
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.208	0.00250	0.200	0	104	90	110			

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

Page 5 of 10

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1207088
Project: Rockwool Ind. - Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_120427A

Sample ID: DCS-51554-1	Batch ID: 51554	TestNo: SW6020		Units: mg/L						
SampType: DCS	Run ID: ICP-MS3_120427A	Analysis Date: 4/27/2012 3:49:00 PM			Prep Date: 4/26/2012					
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.000976	0.00250	0.00100	0	97.6	60	140	0	0	0
Arsenic	0.000914	0.00600	0.00100	0	91.4	60	140	0	0	0
Lead	0.00102	0.00100	0.00100	0	102	60	140	0	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

Page 6 of 10

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1207088
Project: Rockwool Ind. - Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_120718A

The QC data in batch 52758 applies to the following samples: 1207088-20A, 1207088-21A, 1207088-22A, 1207088-23A

Sample ID: MB-52758	Batch ID: 52758	TestNo: SW6020A	Units: mg/L								
SampType: MBLK	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 5:02:00 PM	Prep Date: 7/17/2012								
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									
Sample ID: LCS-52758	Batch ID: 52758	TestNo: SW6020A	Units: mg/L								
SampType: LCS	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 5:08:00 PM	Prep Date: 7/17/2012								
Analyte Result RL SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual											
Antimony	0.190	0.00250	0.200	0	95.2	80	120				
Arsenic	0.195	0.00500	0.200	0	97.4	80	120				
Lead	0.196	0.00100	0.200	0	98.0	80	120				
Sample ID: LCSD-52758	Batch ID: 52758	TestNo: SW6020A	Units: mg/L								
SampType: LCSD	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 5:13:00 PM	Prep Date: 7/17/2012								
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	2.34	15		
Arsenic	0.204	0.00500	0.200	0	102	80	120	4.42	15		
Lead	0.200	0.00100	0.200	0	100	80	120	2.17	15		
Sample ID: 1207123-03B SD	Batch ID: 52758	TestNo: SW6020A	Units: mg/L								
SampType: SD	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 5:30:00 PM	Prep Date: 7/17/2012								
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	0.00290	0.00500	0	0.00272				6.35	10		
Sample ID: 1207123-03B PDS	Batch ID: 52758	TestNo: SW6020A	Units: mg/L								
SampType: PDS	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 6:26:00 PM	Prep Date: 7/17/2012								
Analyte Result RL SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual											
Antimony	0.183	0.00250	0.200	0	91.4	80	120				
Arsenic	0.202	0.00500	0.200	0	101	80	120				
Lead	0.208	0.00100	0.200	0.00272	102	80	120				
Sample ID: 1207123-03B MS	Batch ID: 52758	TestNo: SW6020A	Units: mg/L								
SampType: MS	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 6:32:00 PM	Prep Date: 7/17/2012								
Analyte Result RL SPK value Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual											

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

Page 7 of 10

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1207088
Project: Rockwool Ind. - Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_120718A

Sample ID: 1207123-03B MS	Batch ID: 52758	TestNo:	SW6020A	Units:	mg/L					
SampType: MS	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 6:32:00 PM			Prep Date: 7/17/2012					
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.201	0.00250	0.200	0	101	80	120			
Arsenic	0.201	0.00500	0.200	0	101	80	120			
Lead	0.208	0.00100	0.200	0.00272	102	80	120			

Sample ID: 1207123-03B MSD	Batch ID: 52758	TestNo:	SW6020A	Units:	mg/L					
SampType: MSD	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 6:37:00 PM			Prep Date: 7/17/2012					
Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.205	0.00250	0.200	0	102	80	120	1.67	15	
Arsenic	0.207	0.00500	0.200	0	103	80	120	2.80	15	
Lead	0.211	0.00100	0.200	0.00272	104	80	120	1.86	15	

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

Page 8 of 10

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1207088
Project: Rockwool Ind. - Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_120718A

Sample ID: LCVL-120718	Batch ID: R61484	TestNo: SW6020A			Units: mg/L
SampType: LCVL	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 12:39:00 PM			Prep Date:
Analyte	Result	RL	SPK value	Ref Val	%REC LowLimit HighLimit %RPD RPDLimit Qual
Antimony	0.00187	0.00250	0.00200	0	93.4 70 130
Arsenic	0.00457	0.00500	0.00500	0	91.5 70 130
Lead	0.00103	0.00100	0.00100	0	103 70 130
Sample ID: LCVL1-120718	Batch ID: R61484	TestNo: SW6020A			Units: mg/L
SampType: LCVL	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 3:07:00 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
Arsenic	0.00513	0.00500	0.00500	0	103 70 130
Lead	0.00105	0.00100	0.00100	0	105 70 130
Sample ID: LCVL2-120717	Batch ID: R61484	TestNo: SW6020A			Units: mg/L
SampType: LCVL	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 4:39:00 PM			Prep Date:
Analyte	Result	RL	SPK value	Ref Val	%REC LowLimit HighLimit %RPD RPDLimit Qual
Antimony	0.00205	0.00250	0.00200	0	103 70 130
Arsenic	0.00483	0.00500	0.00500	0	96.6 70 130
Lead	0.000965	0.00100	0.00100	0	96.5 70 130
Sample ID: LCVL3-120718	Batch ID: R61484	TestNo: SW6020A			Units: mg/L
SampType: LCVL	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 7:17:00 PM			Prep Date:
Analyte	Result	RL	SPK value	Ref Val	%REC LowLimit HighLimit %RPD RPDLimit Qual
Antimony	0.00217	0.00250	0.00200	0	109 70 130
Arsenic	0.00522	0.00500	0.00500	0	104 70 130
Lead	0.00105	0.00100	0.00100	0	105 70 130
Sample ID: LCVL4-120718	Batch ID: R61484	TestNo: SW6020A			Units: mg/L
SampType: LCVL	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 8:41:00 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
Arsenic	0.00502	0.00500	0.00500	0	100 70 130
Lead	0.00104	0.00100	0.00100	0	104 70 130
Sample ID: ICV1-120718	Batch ID: R61484	TestNo: SW6020			Units: mg/L
SampType: ICV	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 12:14:00 PM			Prep Date:
Analyte	Result	RL	SPK value	Ref Val	%REC LowLimit HighLimit %RPD RPDLimit Qual
Antimony	0.0960	0.00250	0.100	0	96.0 90 110

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

Page 9 of 10

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1207088
Project: Rockwool Ind. - Belton, TX

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_120718A

Sample ID: ICV1-120718	Batch ID: R61484	TestNo: SW6020		Units: mg/L
SampType: ICV	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 12:14:00 PM		Prep Date:
Analyte	Result	RL	SPK value	Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Arsenic	0.0967	0.00600	0.100	0 96.7 90 110
Lead	0.0988	0.00100	0.100	0 98.8 90 110

Sample ID: CCV1-120718	Batch ID: R61484	TestNo: SW6020		Units: mg/L
SampType: CCV	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 2:39:00 PM		Prep Date:
Analyte	Result	RL	SPK value	Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Antimony	0.204	0.00250	0.200	0 102 90 110
Arsenic	0.211	0.00600	0.200	0 105 90 110
Lead	0.209	0.00100	0.200	0 104 90 110

Sample ID: CCV2-120717	Batch ID: R61484	TestNo: SW6020		Units: mg/L
SampType: CCV	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 4:03:00 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	0.209	0.00600	0.200	0 104 90 110
Lead	0.206	0.00100	0.200	0 103 90 110

Sample ID: CCV4-120718	Batch ID: R61484	TestNo: SW6020		Units: mg/L
SampType: CCV	Run ID: ICP-MS3_120718A	Analysis Date: 7/18/2012 8:07:00 PM		Prep Date:
Analyte	Result	RL	SPK value	Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Antimony	0.211	0.00250	0.200	0 106 90 110
Arsenic	0.217	0.00600	0.200	0 109 90 110
Lead	0.216	0.00100	0.200	0 108 90 110

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

Page 10 of 10

CLIENT: D. B. Stephens & Assoc, Inc.
Work Order: 1207088
Project: Rockwool Ind. - 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

ICP-MS2
For

DHL Work Order
1207088

ICP-MS2_120718C
For

DHL Work Order
1207088

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Project Number(s): ***SEE RUN LOG(S) FOR PROJECT, BATCH NUMBERS, COMMENTS.***		Run ID: ICP-MS2_120718C			
Batch Number(s):		SOP: Metals-ICP-MS-01			
Review Item		Yes	No	N/A	2nd Level Review
Data Folder Contents		X			X
1. Is the Prep Batch Report included? <i>Check the Prep Start/End Dates, Sample Amounts, Bottle #s</i>		X			X
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? <i>All standard/QC sample preparations shall be documented in LIMS</i>		X			X
3. Is the Run Log and instrument sequence included? <i>Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time</i>		X			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		X
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X		X
Review Item	Frequency	Limits	Pass	Fail	N/A
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		X
Note: 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		X
CCV	Every 10 samples	90-110%	X		X
CCB	Every 10 samples	< MDL (ALL + DoD)	X		X
Internal Standards	Every sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD) 30-150% (Other)	X		X
LLCV (6020A or project-specific requirement)	After ICAL, every 10 samples 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		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		X
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X		X
LCSD - RPD	Every LCS/LCSD	15 (H ₂ O) / 20 (Soil)	X		X
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%	X		X
MSD - RPD	Every MS/MSD	15 (H ₂ O) / 20 (Soil)	X		X
Dilution Test (SD) - RPD	Every Batch	10	X		X
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)	X		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		X

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	All deviations from the method and SOP that affect data quality			X	X
1. Are all non-conformances included and noted?				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:

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
<input type="checkbox"/> CCV out of control ($\pm 10\%$)	<input type="checkbox"/> Carryover from previous run	<input type="checkbox"/> Reanalyze QC to confirm
<input type="checkbox"/> CCB out of control (> MDL / $>\frac{1}{2}$ RL)	<input type="checkbox"/> Cross contamination	<input type="checkbox"/> Recalibrate
<input type="checkbox"/> MB out of control (> MDL / $>\frac{1}{2}$ RL)	<input type="checkbox"/> Lab Artifact	<input type="checkbox"/> Reprep/Reanalyze sample
<input type="checkbox"/> LCS <input type="checkbox"/> LCSD out of control ($\pm 20\%$)	<input type="checkbox"/> Prep Spike error (describe)	<input type="checkbox"/> Reprep/Reanalyze Batch
<input type="checkbox"/> MS <input type="checkbox"/> MSD out of control ($\pm 20\%$)	<input type="checkbox"/> Matrix Effect	<input type="checkbox"/> Reanalyze Batch/Sample/QC
<input type="checkbox"/> RPD out of control for MS/MSD (15/25)	<input type="checkbox"/> High Levels of Target Metals	<input type="checkbox"/> Verify reagents are clean
<input type="checkbox"/> Internal Standard(s) out of control (see Method)	<input type="checkbox"/> Insufficient sample for QC	<input type="checkbox"/> Reanalyze sample to confirm
<input type="checkbox"/> No MS/MSD prepared - LCS/LCSD used instead	<input type="checkbox"/> Digestion/Prep Error	<input type="checkbox"/> Sample results ND w/ dilution
<input type="checkbox"/> Missing QC (other than MS/MSD)	<input type="checkbox"/> Analytical Error	<input type="checkbox"/> Client notified and approved
<input type="checkbox"/> QC sample(s) was mis-spiked	<input type="checkbox"/> Client Request	<input type="checkbox"/> Flag data / Case narrative
<input type="checkbox"/> ICSA/ICSAB missing or out of control ($\pm 20\%$)	<input type="checkbox"/> Other (describe below)	<input type="checkbox"/> Accept data
<input type="checkbox"/> LLCV out of control ($\pm 30\%$)		<input type="checkbox"/> Cal Std high and sample ND
<input type="checkbox"/> Other (describe below)		<input type="checkbox"/> Other (describe below)

General Comments and Impact on Data:

Analyst:



Date of Completion: 7/19/2012

Second Level Review:



Reviewer Date Stamp:

REVIEWED

By Evelyn Ferrero at 3:05:16 PM, 7/20/2012

Run ID: ICP-MS2_120718C

Run No.: 61479

Analytical Run Date: 7/18/2012

InstrumentID: ICP-MS2

Analyst: Sara Wieland

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TW	CAL	R61479	7/18/2012 11:12:00 AM		
1 & 20ppb std 2	1	ICPMS_TW	CAL	R61479	7/18/2012 11:18:00 AM		
10 & 200ppb std 3	1	ICPMS_TW	CAL	R61479	7/18/2012 11:24:00 AM		
250 & 5000ppb std 4	1	ICPMS_TW	CAL	R61479	7/18/2012 11:30:00 AM		
500 & 10000ppb std 5	1	ICPMS_TW	CAL	R61479	7/18/2012 11:35:00 AM		
2000 ppb std 6	1	ICPMS_TW	CAL	R61479	7/18/2012 11:41:00 AM		
ICSA-120718	1	ICPMS_TW	ICSA	R61479	7/18/2012 11:58:00 AM		
ICSAB-120718	1	ICPMS_TW	ICSB	R61479	7/18/2012 12:10:00 PM		
ICV1-120718	1	ICPMS_TW	ICV	R61479	7/18/2012 12:32:00 PM		
LCVL-120718	1	6020A_W	LCVL	R61479	7/18/2012 12:44:00 PM		
ICB1-120718	1	ICPMS_TW	ICB	R61479	7/18/2012 12:51:00 PM		
MB-52757	1	6020A_W	MBLK	52757	7/18/2012 12:57:00 PM		
LCS-52757	1	6020A_W	LCS	52757	7/18/2012 1:03:00 PM		
LCSD-52757	1	6020A_W	LCSD	52757	7/18/2012 1:09:00 PM		
1207123-01E	1	6020A_W	SAMP	52757	7/18/2012 1:21:00 PM		
1207123-01E SD	5	6020A_W	SD	52757	7/18/2012 1:27:00 PM		
1207088-01A	1	6020A_W	SAMP	52757	7/18/2012 1:33:00 PM		
1207088-02A	1	6020A_W	SAMP	52757	7/18/2012 1:39:00 PM		
1207088-03A	1	6020A_W	SAMP	52757	7/18/2012 1:45:00 PM		
1207088-04A	1	6020A_W	SAMP	52757	7/18/2012 1:50:00 PM		
1207088-05A	1	6020A_W	SAMP	52757	7/18/2012 1:56:00 PM		
1207088-06A	1	6020A_W	SAMP	52757	7/18/2012 2:02:00 PM		
1207088-07A	1	6020A_W	SAMP	52757	7/18/2012 2:08:00 PM		
1207088-08A	1	6020A_W	SAMP	52757	7/18/2012 2:14:00 PM		
1207088-09A	1	6020A_W	SAMP	52757	7/18/2012 2:20:00 PM		
1207123-01E PDS	1	6020A_W	PDS	52757	7/18/2012 2:26:00 PM		
1207123-01E MS	1	6020A_W	MS	52757	7/18/2012 2:32:00 PM		
1207123-01E MSD	1	6020A_W	MSD	52757	7/18/2012 2:38:00 PM		
CCV1-120718	1	ICPMS_TW	CCV	R61479	7/18/2012 2:44:00 PM		
LCVL1-120718	1	6020A_W	LCVL	R61479	7/18/2012 3:07:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CALB-120613	CAL BLANK		9/13/2012
MET-CCV-120702	ICPMS CCV 200/5000 PPB		10/2/2012
MET-H2CAL-1206	ICPMS High Cal2 2000ppb std 6		9/13/2012
MET-HCAL-12061	ICPMS High Cal 500ppb/10ppm		9/13/2012
MET-ICSA-120327	ICS-A Solution (Interference Che		3/22/2013
MET-ICSAB-12032	ICS-AB Solution (Interference Ch		3/22/2013
MET-ICV-120619	ICPMS ICV 100/2500 PPB		9/19/2012
MET-IS-120530	INTERNAL STANDARD 1 PPM		8/30/2012
MET-L2CAL-12061	ICPMS Low Cal2 1/20ppb std 2		9/13/2012
MET-LCAL-120613	ICPMS Low Cal 10/200ppb std 3		9/11/2012
MET-MCAL-12061	ICPMS Mid Cal 250/5000ppb std		9/13/2012
MET-PA-120501	ICPMS PA FACTOR SOLUTION		5/1/2013
MET-PDS-120629	250 PPM Naturals+Al+Fe PDS		9/29/2012
MET-PDS-120703-	10 PPM CUSTOM PDS SOLUTI		10/3/2012
MET-PDS-120703-	10 PPM Ag+Sb PDS		10/3/2012

Run ID:

ICP-MS2_120718C

Run No.: 61479

CCB1-120718	1	ICPMS_TW	CCB	R61479	7/18/2012 3:24:00 PM		
1207088-10A	1	6020A_W	SAMP	52757	7/18/2012 3:30:00 PM		
1207088-11A	1	6020A_W	SAMP	52757	7/18/2012 3:36:00 PM		
1207088-12A	1	6020A_W	SAMP	52757	7/18/2012 3:43:00 PM		
1207088-13A	1	6020A_W	SAMP	52757	7/18/2012 3:52:00 PM		
1207088-14A	1	6020A_W	SAMP	52757	7/18/2012 3:58:00 PM		
1207088-15A	1	6020A_W	SAMP	52757	7/18/2012 4:04:00 PM		
1207088-16A	1	6020A_W	SAMP	52757	7/18/2012 4:10:00 PM		
1207088-17A	1	6020A_W	SAMP	52757	7/18/2012 4:16:00 PM		
1207088-18A	1	6020A_W	SAMP	52757	7/18/2012 4:22:00 PM		
1207088-19A	1	6020A_W	SAMP	52757	7/18/2012 4:28:00 PM		
CCV2-120718	1	ICPMS_TW	CCV	R61479	7/18/2012 4:34:00 PM		
LCVL2-120718	1	6020A_W	LCVL	R61479	7/18/2012 5:09:00 PM		
CCB2-120718	1	ICPMS_TW	CCB	R61479	7/18/2012 5:21:00 PM		
CCV4-120718	1	ICPMS_TW	CCV	R61479	7/18/2012 9:13:00 PM		
LCVL4-120718	1	6020A_W	LCVL	R61479	7/18/2012 9:49:00 PM		
CCB4-120718	1	ICPMS_TW	CCB	R61479	7/18/2012 10:01:00 PM		
ICSA2-120718	1	ICPMS_TW	ICSA	R61479	7/18/2012 10:07:00 PM		
ICSAB2-120718	1	ICPMS_TW	ICSB	R61479	7/18/2012 10:13:00 PM		
1207088-19A	5	6020A_W	SAMP	52757	7/18/2012 11:48:00 PM		
CCV5-120718	1	ICPMS_TW	CCV	R61479	7/19/2012 12:11:00 AM		
CCV5-120718	1	ICPMS_TW	CCV	R61479	7/19/2012 12:17:00 AM		
LCVL5-120718	1	6020A_W	LCVL	R61479	7/19/2012 12:47:00 AM		
CCB5-120718	1	ICPMS_TW	CCB	R61479	7/19/2012 12:59:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CALB-120613	CAL BLANK		9/13/2012
MET-CCV-120702	ICPMS CCV 200/5000 PPB		10/2/2012
MET-H2CAL-1206	ICPMS High Cal2 2000ppb std 6		9/13/2012
MET-HCAL-12061	ICPMS High Cal 500ppb/10ppm		9/13/2012
MET-ICSA-120327	ICS-A Solution (Interference Che		3/22/2013
MET-ICSAB-12032	ICS-AB Solution (Interference Ch		3/22/2013
MET-ICV-120619	ICPMS ICV 100/2500 PPB		9/19/2012
MET-IS-120530	INTERNAL STANDARD 1 PPM		8/30/2012
MET-L2CAL-12061	ICPMS Low Cal2 1/20ppb std 2		9/13/2012
MET-LCAL-120613	ICPMS Low Cal 10/200ppb std 3		9/11/2012
MET-MCAL-12061	ICPMS Mid Cal 250/5000ppb std		9/13/2012
MET-PA-120501	ICPMS PA FACTOR SOLUTION		5/1/2013
MET-PDS-120629	250 PPM Naturals+Al+Fe PDS		9/29/2012
MET-PDS-120703-	10 PPM CUSTOM PDS SOLUTI		10/3/2012
MET-PDS-120703-	10 PPM Ag+Sb PDS		10/3/2012

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		CALBEG	Start of CALIB						
2	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
3	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
4	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
5	C:\ICPCHEM1\METHO DS\DHL_2.m	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
6	C:\ICPCHEM1\METHO DS\DHL_2.m	CalStd	2102		1 & 20ppb std 2	CAL ICPMS_TW	Level 2				
7	C:\ICPCHEM1\METHO DS\DHL_2.m	CalStd	2103		10 & 200ppb std 3	CAL ICPMS_TW	Level 3				
8	C:\ICPCHEM1\METHO DS\DHL_2.m	CalStd	2104		250 & 5000ppb std 4	CAL ICPMS_TW	Level 4				
9	C:\ICPCHEM1\METHO DS\DHL_2.m	CalStd	2105		500 & 10000ppb std 5	CAL ICPMS_TW	Level 5				
10	C:\ICPCHEM1\METHO DS\DHL_2.m	CalStd	2106		2000 ppb std 6	CAL ICPMS_TW	Level 6				
11	C:\ICPCHEM1\METHO DS\DHL_2.m	Blank	1102		BLANK	CAL ICPMS_TW	1.000				
12	C:\ICPCHEM1\METHO DS\DHL_2.m	Blank	1103		BLANK	CAL ICPMS_TW	1.000				
13		Keyword		CALEND	End of CALIB						
14		Keyword		ICSBEG	Start of ICS						
15	C:\ICPCHEM1\METHO DS\DHL_2.m	ICS-A	2107		ICSA-120718	ICSAICPMS_TW	1.000				
16	C:\ICPCHEM1\METHO DS\DHL_2.m	ICS-AB	2108		ICSAB-120718	ICSBICPMS_TW	1.000				
17	C:\ICPCHEM1\METHO DS\DHL_2.m	ICS-AB	2108		ICSAB-120718	ICSBICPMS_TW	1.000				
18	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
19	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
20		Keyword		ICSEND	End of ICS						
21		Keyword		SMPLBEG	Start of SMPL						
22	C:\ICPCHEM1\METHO DS\DHL_2.m	ICV	2109		ICV1-120718	ICV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
23	C:\ICPCHEM1\METHO DS\DHL_2.m	ICB	2101		ICB1-120718	ICB ICPMS_TW	1.000				
24	C:\ICPCHEM1\METHO DS\DHL_2.m	LCVL5	2110		LCVL-120718	LCVL6020A_W	1.000				
25	C:\ICPCHEM1\METHO DS\DHL_2.m	ICB	1105		ICB1-120718	ICB ICPMS_TW	1.000				
26	C:\ICPCHEM1\METHO DS\DHL_2.m	PB W	2201		MB-52757	MBLK6020A_W	1.000				
27	C:\ICPCHEM1\METHO DS\DHL_2.m	LCS W	2202		LCS-52757	LCS 6020A_W	1.000				
28	C:\ICPCHEM1\METHO DS\DHL_2.m	LCS W	2203		LCSD-52757	LCSD6020A_W	1.000				
29	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
30	C:\ICPCHEM1\METHO DS\DHL_2.m	AllRef	2204		1207123-01E	SAMP6020A_W	1.000				
31	C:\ICPCHEM1\METHO DS\DHL_2.m	DT	2205		1207123-01E SD	SD 6020A_W	5.000				
32	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2206		1207088-01A	SAMP6020A_W	1.000				
33	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2207		1207088-02A	SAMP6020A_W	1.000				
34	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2208		1207088-03A	SAMP6020A_W	1.000				
35	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2209		1207088-04A	SAMP6020A_W	1.000				
36	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2210		1207088-05A	SAMP6020A_W	1.000				
37	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2211		1207088-06A	SAMP6020A_W	1.000				
38	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2212		1207088-07A	SAMP6020A_W	1.000				
39	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2301		1207088-08A	SAMP6020A_W	1.000				
40	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2302		1207088-09A	SAMP6020A_W	1.000				
41	C:\ICPCHEM1\METHO DS\DHL_2.m	PDS	2303		1207123-01E PDS	PDS 6020A_W	1.000				
42	C:\ICPCHEM1\METHO DS\DHL_2.m	MS_W	2304		1207123-01E MS	MS 6020A_W	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
43	C:\ICPCHEM1\METHO DS\DHL_2.m	MS_W	2305		1207123-01E MSD	MSD 6020A_W	1.000				
44	C:\ICPCHEM1\METHO DS\DHL_2.m	CCV1	1307		CCV1-120718	CCV ICPMS_TW	1.000				
45	C:\ICPCHEM1\METHO DS\DHL_2.m	CCV1	2112		CCV1-120718	CCV ICPMS_TW	1.000				
46	C:\ICPCHEM1\METHO DS\DHL_2.m	CCV1	1306		CCV1-120718	CCV ICPMS_TW	1.000				
47	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1103		CCB1-120718	CCB ICPMS_TW	1.000				
48	C:\ICPCHEM1\METHO DS\DHL_2.m	LCVL5	2110		LCVL1-120718	LCVL6020A_W	1.000				
49	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1104		CCB1-120718	CCB ICPMS_TW	1.000				
50	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1105		CCB1-120718	CCB ICPMS_TW	1.000				
51	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2306		1207088-10A	SAMP6020A_W	1.000				
52	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2307		1207088-11A	SAMP6020A_W	1.000				
53	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2308		1207088-12A	SAMP6020A_W	1.000				
54	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2309		1207088-13A	SAMP6020A_W	1.000				
55	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2310		1207088-14A	SAMP6020A_W	1.000				
56	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2311		1207088-15A	SAMP6020A_W	1.000				
57	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2312		1207088-16A	SAMP6020A_W	1.000				
58	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2401		1207088-17A	SAMP6020A_W	1.000				
59	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2402		1207088-18A	SAMP6020A_W	1.000				
60	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2403		1207088-19A	SAMP6020A_W	1.000				
61	C:\ICPCHEM1\METHO DS\DHL_2.m	CCV1	1307		CCV2-120718	CCV ICPMS_TW	1.000				
62	C:\ICPCHEM1\METHO DS\DHL_2.m	CCV1	2112		CCV2-120718	CCV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
63	C:\ICPCHEM1\METHO DS\DHL_2.m	CCV1	1306		CCV2-120718	CCV ICPMS_TW	1.000				
64	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1102		CCB2-120718	CCB ICPMS_TW	1.000				
65	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1103		CCB2-120718	CCB ICPMS_TW	1.000				
66	C:\ICPCHEM1\METHO DS\DHL_2.m	LCVL1	2110		LCVL2-120718	LCVL6020A_W	1.000				
67	C:\ICPCHEM1\METHO DS\DHL_2.m	LCVL5	2111		LCVL2-120718	LCVL6020A_W	1.000				
68	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1104		CCB2-120718	CCB ICPMS_TW	1.000				
69	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1105		CCB2-120718	CCB ICPMS_TW	1.000				
70	C:\ICPCHEM1\METHO DS\DHL_2.m	PB W	2501		MB-52781	MBLKTCLP_MET	1.000				
71	C:\ICPCHEM1\METHO DS\DHL_2.m	PB W	2502		MB-52759 TCLP	MBLKTCLP_MET	1.000				
72	C:\ICPCHEM1\METHO DS\DHL_2.m	LCS W	2503		LCS-52781	LCS TCLP_MET	1.000				
73	C:\ICPCHEM1\METHO DS\DHL_2.m	LCS W	2504		LCSD-52781	LCSDTCLP_MET	1.000				
74	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
75	C:\ICPCHEM1\METHO DS\DHL_2.m	AllRef	2505		1207111-01C	SAMPTCLP_MET	1.000				
76	C:\ICPCHEM1\METHO DS\DHL_2.m	DT	2506		1207111-01C SD	SD TCLP_MET	5.000				
77	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2507		1207118-01A	SAMPTCLP_MET	1.000				
78	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2508		1207118-02A	SAMPTCLP_MET	1.000				
79	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2509		1207118-03A	SAMPTCLP_MET	1.000				
80	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2510		1207118-04A	SAMPTCLP_MET	1.000				
81	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2511		1207118-05A	SAMPTCLP_MET	1.000				
82	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2512		1207118-06A	SAMPTCLP_MET	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
83	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2404		1207118-07A	SAMPTCLP_MET	1.000				
84	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2405		1207118-08A	SAMPTCLP_MET	1.000				
85	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	2406		1207098-01A	SAMPTCLP_MET	1.000				
86	C:\ICPCHEM1\METHO DS\DHL_2.m	PDS	2407		1207111-01C PDS	PD TCLP_MET	1.000				
87	C:\ICPCHEM1\METHO DS\DHL_2.m	MS_W	2408		1207111-01C MS	MS TCLP_MET	1.000				
88	C:\ICPCHEM1\METHO DS\DHL_2.m	MS_W	2409		1207111-01C MSD	MSD TCLP_MET	1.000				
89	C:\ICPCHEM1\METHO DS\DHL_2.m	CCV1	1307		CCV3-120718	CCV ICPMS_TW	1.000				
90	C:\ICPCHEM1\METHO DS\DHL_2.m	CCV1	2112		CCV3-120718	CCV ICPMS_TW	1.000				
91	C:\ICPCHEM1\METHO DS\DHL_2.m	CCV1	1306		CCV3-120718	CCV ICPMS_TW	1.000				
92	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1102		CCB3-120718	CCB ICPMS_TW	1.000				
93	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1103		CCB3-120718	CCB ICPMS_TW	1.000				
94	C:\ICPCHEM1\METHO DS\DHL_2.m	LCVL1	2102		LCVL3-120718	LCVL6020A_W	1.000				
95	C:\ICPCHEM1\METHO DS\DHL_2.m	LCVL5	2110		LCVL3-120718	LCVL6020A_W	1.000				
96	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1104		CCB3-120718	CCB ICPMS_TW	1.000				
97	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1105		CCB3-120718	CCB ICPMS_TW	1.000				
98	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	3101		1207147-03A	SAMPTCLP_MET	1.000				
99	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	3102		1207100-01A	SAMPTCLP_MET	1.000				
100	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	3103		1207115-01B	SAMPTCLP_MET	1.000				
101	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	3104		1207115-02B	SAMPTCLP_MET	1.000				
102	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	3105		1207115-03B	SAMPTCLP_MET	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
103	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	3106		1207158-01B	SAMP200.8	1.000				
104	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	3107		1207158-02B	SAMP200.8	1.000				
105	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	3108		1207157-01A	SAMP200.8	1.000				
106	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	3109		1207146-01A	SAMP200.8	1.000				
107	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	3110		1207150-01A	SAMP200.8	1.000				
108	C:\ICPCHEM1\METHO DS\DHL_2.m	CCV1	1307		CCV4-120718	CCV ICPMS_TW	1.000				
109	C:\ICPCHEM1\METHO DS\DHL_2.m	CCV1	2112		CCV4-120718	CCV ICPMS_TW	1.000				
110	C:\ICPCHEM1\METHO DS\DHL_2.m	CCV1	1306		CCV4-120718	CCV ICPMS_TW	1.000				
111	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1102		CCB4-120718	CCB ICPMS_TW	1.000				
112	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1103		CCB4-120718	CCB ICPMS_TW	1.000				
113	C:\ICPCHEM1\METHO DS\DHL_2.m	LCVL1	2110		LCVL4-120718	LCVL6020A_W	1.000				
114	C:\ICPCHEM1\METHO DS\DHL_2.m	LCVL5	2111		LCVL4-120718	LCVL6020A_W	1.000				
115	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1104		CCB4-120718	CCB ICPMS_TW	1.000				
116	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1105		CCB4-120718	CCB ICPMS_TW	1.000				
117	C:\ICPCHEM1\METHO DS\DHL_2.m	ICS-A	2107		ICSA2-120718	ICSAICPMS_TW	1.000				
118	C:\ICPCHEM1\METHO DS\DHL_2.m	ICS-AB	2108		ICSBAB2-120718	ICSBICPMS_TW	1.000				
119	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
120	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
121	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1104		RINSE	CCB ICPMS_TW	1.000				
122	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1105		RINSE	CCB ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
123	C:\ICPCHEM1\METHO DS\DHL_2.m	PB W	3201		MB-52693	MBLK200.8	1.000				
124	C:\ICPCHEM1\METHO DS\DHL_2.m	LCS_200	3202		LCS-52693	LCS 200.8	1.000				
125	C:\ICPCHEM1\METHO DS\DHL_2.m	LCS_200	3203		LCSD-52693	LCSD200.8	1.000				
126	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
127	C:\ICPCHEM1\METHO DS\DHL_2.m	AllRef	3204		1207143-01F	SAMP200.8	1.000				
128	C:\ICPCHEM1\METHO DS\DHL_2.m	DT	3205		1207143-01F SD	SD 200.8	5.000				
129	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	3206		1207150-04A	SAMP200.8	1.000				
130	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	3207		1207150-05A	SAMP200.8	1.000				
131	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	3208		1207150-06A	SAMP200.8	1.000				
132	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	3209		1207150-02A	SAMP200.8	1.000				
133	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	3210		1207150-03A	SAMP200.8	1.000				
134	C:\ICPCHEM1\METHO DS\DHL_2.m	SampleW	3302		1207088-19A	SAMP6020A_W	5.000				
135	C:\ICPCHEM1\METHO DS\DHL_2.m	PDS	3211		1207143-01F PDS	PDS 200.8	1.000				
136	C:\ICPCHEM1\METHO DS\DHL_2.m	MS_W	3212		1207143-01F MS	MS 200.8	1.000				
137	C:\ICPCHEM1\METHO DS\DHL_2.m	MS_W	3301		1207143-01F MSD	MSD 200.8	1.000				
138	C:\ICPCHEM1\METHO DS\DHL_2.m	CCV1	1307		CCV5-120718	CCV ICPMS_TW	1.000				
139	C:\ICPCHEM1\METHO DS\DHL_2.m	CCV1	2112		CCV5-120718	CCV ICPMS_TW	1.000				
140	C:\ICPCHEM1\METHO DS\DHL_2.m	CCV1	1306		CCV5-120718	CCV ICPMS_TW	1.000				
141	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1102		CCB5-120718	CCB ICPMS_TW	1.000				
142	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1103		CCB5-120718	CCB ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
143	C:\ICPCHEM1\METHO DS\DHL_2.m	LCVL1	2102		LCVL5-120718	LCVL6020A_W	1.000				
144	C:\ICPCHEM1\METHO DS\DHL_2.m	LCVL5	2111		LCVL5-120718	LCVL6020A_W	1.000				
145	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1104		CCB5-120718	CCB ICPMS_TW	1.000				
146	C:\ICPCHEM1\METHO DS\DHL_2.m	CCB	1105		CCB5-120718	CCB ICPMS_TW	1.000				
147	Keyword		StandBy								
148	Keyword		SMPLEND	End of SMPL							
149	Keyword		End	End of Sequence							
150	Keyword		BLKBEG	Start of BLANK							
151	Keyword		BLKEND	End of BLANK							
152	Keyword		ERRBEG	Start of ERRTERM							
153	Keyword		ERREND	End of ERRTERM							

DHL Analytical**PREP BATCH REPORT**

Page: 1 of 1

Prep Start Date: 7/17/2012 9:05:00 AM

Digestion: Start: 7/17/2012 10:15:00 AM / Stop: 7/17/2012 3:40:00 PM

Prep End Date: 7/17/2012 3:55:29 PM

Prep Factor Units:

mL/mL

Prep Batch **52757** Prep Code: **3005A**Technician: **Lynette Mercado**

Equipment List	
Thermometer #64	
Hot Block #1	

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	
1207088-01A	Aqueous		50	50	1.000	1 of 1	
1207088-02A	Aqueous		50	50	1.000	1 of 1	
1207088-03A	Aqueous		50	50	1.000	1 of 1	
1207088-04A	Aqueous		50	50	1.000	1 of 1	
1207088-05A	Aqueous		50	50	1.000	1 of 1	
1207088-06A	Aqueous		50	50	1.000	1 of 1	
1207088-07A	Aqueous		50	50	1.000	1 of 1	
1207088-08A	Aqueous		50	50	1.000	1 of 1	
1207088-09A	Aqueous		50	50	1.000	1 of 1	
1207088-10A	Aqueous		50	50	1.000	1 of 1	
1207088-11A	Aqueous		50	50	1.000	1 of 1	
1207088-12A	Aqueous		50	50	1.000	1 of 1	
1207088-13A	Aqueous		50	50	1.000	1 of 1	
1207088-14A	Aqueous		50	50	1.000	1 of 1	
1207088-15A	Equip Blank		50	50	1.000	1 of 1	
1207088-16A	Aqueous		50	50	1.000	1 of 1	
1207088-17A	Aqueous		50	50	1.000	1 of 1	
1207088-18A	Aqueous		50	50	1.000	1 of 1	
1207088-19A	Aqueous		50	50	1.000	1 of 1	
1207123-01E	Aqueous		50	50	1.000	1 of 1	
1207123-01E MS	Aqueous		50	50	1.000	of	
1207123-01E MSD	Aqueous		50	50	1.000	of	
1207123-01E PDS	Aqueous		50	50	1.000	of	
1207123-01E SD	Aqueous		50	50	1.000	of	
LCS-52757	Aqueous		50	50	1.000	of	
LCSD-52757	Aqueous		50	50	1.000	of	
MB-52757	Aqueous		50	50	1.000	of	

Number	Reagent Name	AmtAdd(mL)	Exp. Date
6526	Digestion Vessels		3/8/2013
6601	Nitric Acid (Trace Grade)	1	5/9/2013
6612	HCL (Trace Grade)	1	5/12/2013

Spk ID	Spike Name	SampType	AmtAdd(mL)	Exp. Date
MET-SPIKE-120618	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	7/18/2012
MET-SPIKE-120709-01	1000 PPM IRON PRIMARY STD	LCS/MS/MSD	0.25	7/9/2013
MET-SPIKE-120709-02	1000 PPM AL PRIMARY STD	LCS/MS/MSD	0.25	7/9/2013
MET-SPIKE-120710-1	50 PPM Custom+Li,Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	0.2	8/10/2012
MET-SPIKE-120710-2	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	8/10/2012

REVIEWED

By Evelyn Ferrero at 3:09:22 PM, 7/20/2012

Calibration Summary Report

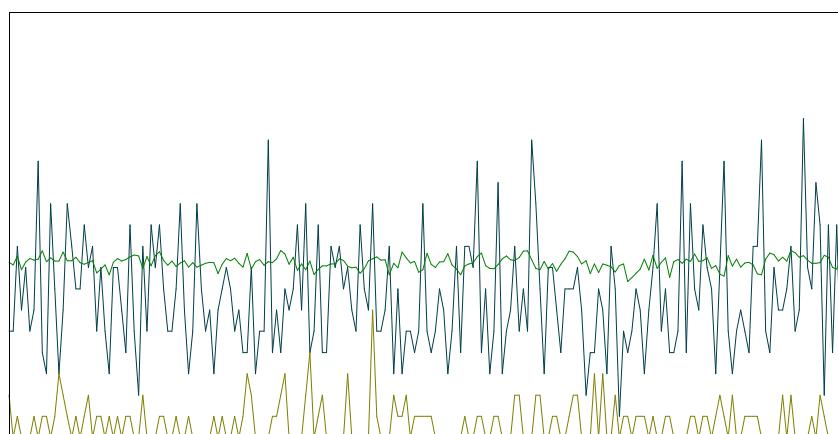
Instrument: ICMPS2
Current Method: C:\ICPCHEM\1\METHODS\DHL_2.m
Calibration: C:\ICPCHEM\1\CALIB\DHL_2.c
Last Update: Jul 18 2012 11:46 am

Standard	Date Acquired	File
BLANK STD 1	Jul 18 2012 11:12 am	c:\icpcchem\1\data\12g18k01.b\004calb.d\
1 & 20ppb std 2	Jul 18 2012 11:18 am	c:\icpcchem\1\data\12g18k01.b\005cals.d\
10 & 200ppb std 3	Jul 18 2012 11:24 am	c:\icpcchem\1\data\12g18k01.b\006cals.d\
250 & 5000ppb std 4	Jul 18 2012 11:30 am	c:\icpcchem\1\data\12g18k01.b\007cals.d\
500 & 10000ppb std 5	Jul 18 2012 11:35 am	c:\icpcchem\1\data\12g18k01.b\008cals.d\
2000 ppb std 6	Jul 18 2012 11:41 am	c:\icpcchem\1\data\12g18k01.b\009cals.d\

Element Name	Cal Type	Corr Coef	Coef A	Coef B
Li	Y=aX+[blank]	1.0000	2.062	10.27
Be	Y=aX+[blank]	1.0000	0.4602	0.0365
B	Y=aX+[blank]	0.9999	0.2976	1.049
Na	Y=aX+[blank]	1.0000	1.308	73.91
Mg	Y=aX+[blank]	1.0000	0.5859	0.9385
Al	Y=aX+[blank]	1.0000	0.1957	1.533
K	Y=aX+[blank]	0.9999	0.5653	39.61
Ca	Y=aX+[blank]	1.0000	0.06144	1.641
Ti	Y=aX+[blank]	0.9999	0.2011	0.01221
V	Y=aX+[blank]	1.0000	6.824	0.6567
Cr	Y=aX+[blank]	1.0000	8.448	2.027
Mn	Y=aX+[blank]	1.0000	4.599	0.5301
Fe	Y=aX+[blank]	0.9998	9.25	35.26
Co	Y=aX+[blank]	1.0000	19.79	1.008
Ni	Y=aX+[blank]	1.0000	5.288	1.09
Cu	Y=aX+[blank]	1.0000	14.7	8.976
Zn	Y=aX+[blank]	1.0000	2.239	1.533
As	Y=aX+[blank]	1.0000	1.422	0.1337
Se	Y=aX+[blank]	1.0000	0.1228	0.1622
Sr	Y=aX+[blank]	0.9999	2.088	0.1562
Mo	Y=aX+[blank]	1.0000	0.3655	0.03134
Ag	Y=aX+[blank]	1.0000	0.9962	0.01718
Cd	Y=aX+[blank]	1.0000	0.2101	0.008878
Sn	Y=aX+[blank]	1.0000	0.6335	0.1071
Sb	Y=aX+[blank]	1.0000	0.8288	0.2717
Ba	Y=aX+[blank]	0.9999	0.3449	0.02686
Tl	Y=aX+[blank]	1.0000	2.319	0.1113
Pb	Y=aX+[blank]	1.0000	3.22	0.3083

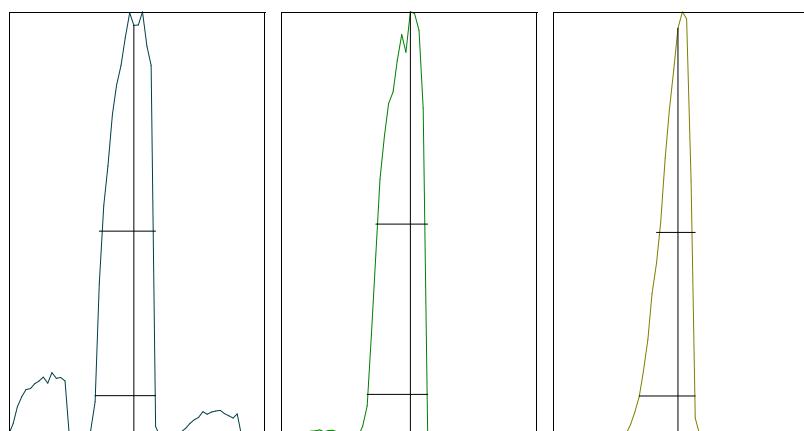
Tune Report

Tune File : He.U
Comment :



Integration Time: 0.1000 sec
Sampling Period: 0.3100 sec
n: 200
Oxide: 51/59 0.311%
Doubly Charged: 70/140 1.210%

m/z	Range	Count	Mean	RSD%	Background
51	20	3.0	6.6	41.11	0.10
59	5,000	2102.0	2056.6	3.50	0.10
75	20	0.0	0.7	137.57	0.20
51/59	1	0.143%	0.323%	41.57	



m/z: 59 89 205
Height: 2,037 1,896 4,125
Axis: 59.00 89.05 205.00
W-50%: 0.65 0.60 0.45
W-10%: 0.700 0.700 0.6500

Integration Time: 0.1000 sec
Acquisition Time: 22.5600 sec

Y axis : Linear

Tune Report

Tune File : He.U
Comment :

Tuning Parameters

==Plasma Condition==

RF Power : 1500 W
RF Matching : 1.59 V
Smpl Depth : 8 mm
Torch-H : -0.1 mm
Torch-V : -0.2 mm
Carrier Gas : 1.1 L/min
Makeup Gas : 0 L/min
Optional Gas : --- %
Nebulizer Pump : 0.1 rps
Sample Pump : --- rps
S/C Temp : 2 degC

==Ion Lenses==

Extract 1 : 0 V
Extract 2 : -145 V
Omega Bias-ce : -28 V
Omega Lens-ce : 1.4 V
Cell Entrance : -28 V
QP Focus : -10 V
Cell Exit : -40 V

==Q-Pole Parameters==

AMU Gain : 126
AMU Offset : 122
Axis Gain : 0.9992
Axis Offset : 0.02
QP Bias : -14.5 V

==Detector Parameters==

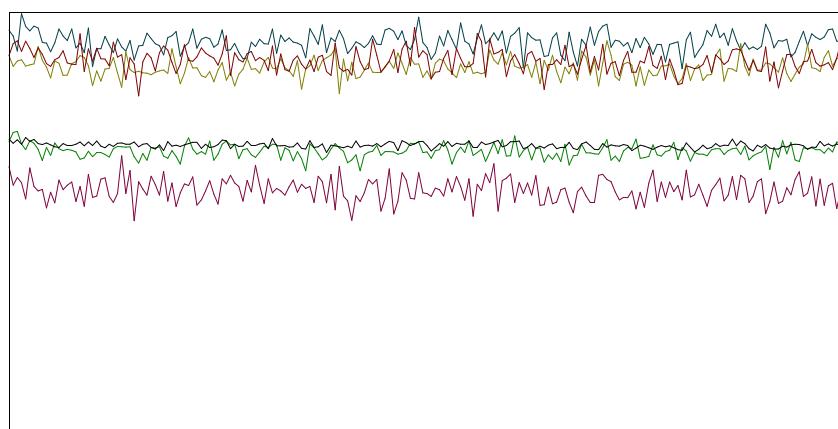
Discriminator : 8 mV
Analog HV : 1810 V
Pulse HV : 1810 V

==Reaction Cell==

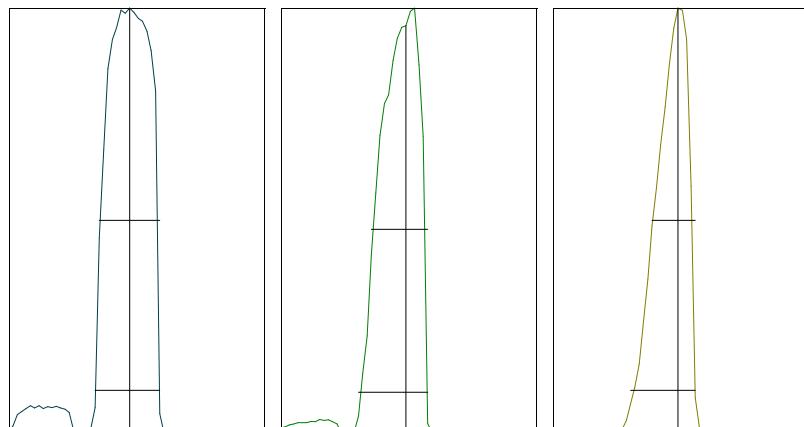
Reaction Mode : ON
H2 Gas : 0 mL/min
He Gas : 4.7 mL/min
Optional Gas : --- %

Tune Report

Tune File : nogas.u
Comment :



m/z	Range	Count	Mean	RSD%	Background
7	10,000	9311.0	9313.0	2.45	0.40
89	20,000	13824.0	13461.2	2.33	1.90
205	10,000	8966.0	8700.5	2.53	1.50
156/140	2	0.706%	0.568%	12.08	
70/140	2	1.088%	1.191%	9.97	
6	1,000	585.0	582.7	4.81	0.70
23	50,000	34280.0	34382.6	0.95	0.70
63	5,000	4674.0	4434.9	2.94	0.70



Tune Report

Tune File : nogas.u
Comment :

Tuning Parameters

==Plasma Condition==			==Ion Lenses==			==Q-Pole Parameters==		
RF Power	:	1500 W	Extract 1	:	0 V	AMU Gain	:	126
RF Matching	:	1.59 V	Extract 2	:	-145 V	AMU Offset	:	122
Smpl Depth	:	8 mm	Omega Bias-ce	:	-28 V	Axis Gain	:	0.9992
Torch-H	:	-0.1 mm	Omega Lens-ce	:	1.4 V	Axis Offset	:	0.02
Torch-V	:	-0.2 mm	Cell Entrance	:	-28 V	QP Bias	:	-5 V
Carrier Gas	:	1.1 L/min	QP Focus	:	2 V	==Detector Parameters==		
Makeup Gas	:	0 L/min	Cell Exit	:	-32 V	Discriminator	:	8 mV
Optional Gas	:	--- %	==Octopole Parameters==			Analog HV	:	1810 V
Nebulizer Pump	:	0.1 rps	OctP RF	:	180 V	Pulse HV	:	1810 V
Sample Pump	:	--- rps	OctP Bias	:	-7 V			
S/C Temp	:	2 degC						

==Reaction Cell==

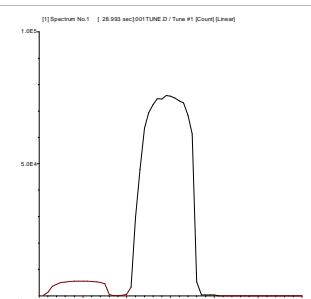
Reaction Mode	:	OFF	==Octopole Parameters==					
H2 Gas	:	0 mL/min	OctP RF	:	180 V			
			OctP Bias	:	-7 V			

6020 QC Tune Report

Data File: C:\ICPCHEM\1\DATA\12G18k00.B\001TUNE.D
 Date Acquired: Jul 18 2012 10:25 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	1.97	5.00	
59 Co	1.05	5.00	
115 In	1.07	5.00	
205 Tl	1.62	5.00	

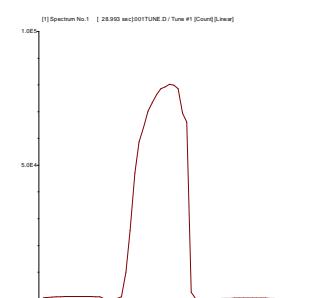


7 Li
Mass Calib.

Actual: 6.95
Required: 6.90 - 7.10
Flag:

Peak Width

Actual: 0.65
Required: 0.90
Flag:

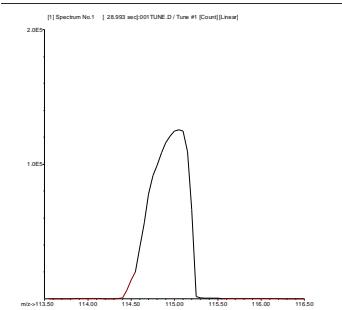


59 Co
Mass Calib.

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

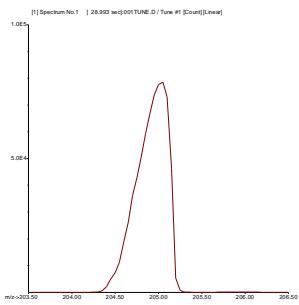
Flag:

Peak Width

Actual: 0.60

Required: 0.90

Flag:



205 Tl

Mass Calib.

Actual: 205.00

Required: 204.90 - 205.10

Flag:

Peak Width

Actual: 0.55

Required: 0.90

Flag:

P/A Factor Tuning Report

Acquired:Jul 18 2012 10:19 am

Mass[amu]	Element	P/A Factor
6	Li	0.081935
7	Li	Sensitivity too low
9	Be	0.091933
11	B	Sensitivity too low
23	Na	0.100988
24	Mg	0.106068
27	Al	0.110056
39	K	0.109155
44	Ca	Sensitivity too low
45	Sc	0.110498
47	Ti	Sensitivity too low
51	V	0.114343
52	Cr	0.117628
55	Mn	0.119801
56	Fe	0.106803
59	Co	0.124873
60	Ni	0.127667
63	Cu	0.130561
66	Zn	0.129869
72	Ge	0.128185
75	As	0.126520
78	Se	Sensitivity too low
88	Sr	0.128247
95	Mo	0.126685
106	(Cd)	0.136147
107	Ag	Sensitivity too low
108	(Cd)	0.136339
111	Cd	0.138248
115	In	0.137242
118	Sn	0.136902
121	Sb	0.136314
137	Ba	Sensitivity too low
205	Tl	0.149988
206	(Pb)	0.149768
207	(Pb)	0.150066
208	Pb	0.149839
209	Bi	0.149575

====Detector Parameters=====

Discriminator: 8.0 mV
Analog HV: 1810 V
Pulse HV: 1810 V

Calibration Blank QC Report

Acq. Method:

DHL_2.m

Sample Name: BLANK STD 1

Operator:

AR

Instrument: ICPMS2

Last Cal. Update:

Jul 18 2012 11:16 am

Date Acquired:

Jul 18 2012 11:12 am

QC&ISTD Elements

Element		CPS Mean	SD	RSD(%)	
6	Li	2 ---	502320.09 P	5687.00	1.13
7	Li	2 45	31579.04 P	225.20	0.71
9	Be	2 45	112.23 P	17.11	15.25
11	B	2 45	3222.62 P	83.75	2.60
23	Na	1 45	8054.19 P	183.00	2.27
24	Mg	1 45	102.23 P	15.03	14.70
27	Al	1 45	167.11 P	9.46	5.66
39	K	1 45	4316.18 P	150.30	3.48
44	Ca	2 45	5043.06 P	115.90	2.30
45	Sc	1 ---	21794.10 P	95.16	0.44
45	Sc	2 ---	614766.50 P	3960.00	0.64
47	Ti	1 45	1.33 P	1.33	99.97
51	V	1 45	71.56 P	6.84	9.56
51	V	2 ---	P		
52	Cr	1 45	220.89 P	23.71	10.73
55	Mn	1 45	57.78 P	12.10	20.94
56	Fe	1 72	2539.32 P	131.30	5.17
59	Co	1 72	72.45 P	7.81	10.79
60	Ni	1 72	78.22 P	14.26	18.23
60	Ni	2 ---	P		
63	Cu	1 72	645.80 P	16.88	2.61
63	Cu	2 ---	P		
66	Zn	1 72	110.22 P	14.87	13.49
66	Zn	2 ---	P		
72	Ge	1 ---	14399.89 P	338.80	2.35
72	Ge	2 ---	P		
75	As	1 72	9.63 P	0.79	8.19
78	Se	1 72	11.67 P	0.38	3.30
88	Sr	2 ###	607.81 P	28.35	4.66
95	Mo	2 ###	122.23 P	27.96	22.88
107	Ag	2 ###	66.67 P	24.04	36.06
111	Cd	2 ###	34.33 P	35.29	102.79
115	In	2 ---	778296.38 P	11900.00	1.53
118	Sn	2 ###	416.69 P	37.86	9.09
121	Sb	2 ###	1057.84 P	59.29	5.60
137	Ba	2 ###	104.45 P	18.36	17.58
205	Tl	2 ###	315.57 P	47.42	15.03
208	Pb	2 ###	874.48 P	63.46	7.26
209	Bi	2 ---	567156.00 P	3724.00	0.66

Calibration Standard QC Report

Acq. Method: DHL_2.m Sample Name: 1 & 20ppb std 2
 Operator: AR Instrument: ICPMS2
 Date Acquired: Jul 18 2012 11:18 am
 Last Cal. Update: Jul 18 2012 11:16 am

QC&ISTD Elements

Element	CPS	Mean	SD	RSD (%)
6 Li 2 ---	501052.00	P	3933.00	0.78
7 Li 2 45	37611.15	P	294.10	0.78
9 Be 2 45	1470.09	P	49.78	3.39
11 B 2 45	3846.06	P	115.30	3.00
23 Na 1 45	11149.13	P	112.90	1.01
24 Mg 1 45	1324.53	P	39.49	2.98
27 Al 1 45	648.02	P	80.90	12.48
39 K 1 45	5617.69	P	225.10	4.01
44 Ca 2 45	8697.88	P	333.10	3.83
45 Sc 1 ---	23002.91	P	264.70	1.15
45 Sc 2 ---	618951.81	P	7999.00	1.29
47 Ti 1 45	19.56	P	6.30	32.22
51 V 1 45	816.92	P	37.06	4.54
51 V 2 ---		P		
52 Cr 1 45	1127.16	P	61.95	5.50
55 Mn 1 45	593.35	P	24.11	4.06
56 Fe 1 72	18434.88	P	264.30	1.43
59 Co 1 72	1513.86	P	16.29	1.08
60 Ni 1 72	490.23	P	41.45	8.46
60 Ni 2 ---		P		
63 Cu 1 72	1774.33	P	75.48	4.25
63 Cu 2 ---		P		
66 Zn 1 72	291.56	P	19.66	6.74
66 Zn 2 ---		P		
72 Ge 1 ---	14960.56	P	116.50	0.78
72 Ge 2 ---		P		
75 As 1 72	109.15	P	2.02	1.85
78 Se 1 72	23.70	P	1.29	5.43
88 Sr 2 115	7955.38	P	239.70	3.01
95 Mo 2 115	1513.45	P	63.86	4.22
107 Ag 2 115	3671.61	P	110.90	3.02
111 Cd 2 115	771.80	P	71.11	9.21
115 In 2 ---	791424.69	P	13660.00	1.73
118 Sn 2 115	2699.19	P	50.16	1.86
121 Sb 2 115	3799.44	P	107.80	2.84
137 Ba 2 115	1366.76	P	75.14	5.50
205 Tl 2 209	6210.33	P	315.20	5.08
208 Pb 2 209	9311.41	P	171.40	1.84
209 Bi 2 ---	568105.88	P	10890.00	1.92

ISTD Elements

Element	CPS	Mean	RSD (%)	Ref Value	Rec (%)	QC	Range (%)	Flag
6 Li 2	501052.03	0.78	502320.09	99.7	60 -	120		
45 Sc 1	23002.91	1.15	21794.10	105.5	60 -	120		
45 Sc 2	618951.81	1.29	614766.56	100.7	60 -	120		
72 Ge 1	14960.56	0.78	14399.89	103.9	60 -	120		
115 In 2	791424.69	1.73	778296.38	101.7	60 -	120		
209 Bi 2	568105.88	1.92	567156.00	100.2	60 -	120		

Calibration Standard QC Report

Acq. Method: DHL_2.m Sample Name: 10 & 200ppb std 3
 Operator: AR Instrument: ICPMS2
 Date Acquired: Jul 18 2012 11:24 am
 Last Cal. Update: Jul 18 2012 11:21 am

QC&ISTD Elements

Element		CPS Mean	SD	RSD (%)	
6 Li	2 ---	513280.00 P	5168.00	1.01	
7 Li	2 45	98441.23 P	1047.00	1.06	Fail
9 Be	2 45	14299.11 P	55.66	0.39	Fail
11 B	2 45	12016.40 P	449.70	3.74	Fail
23 Na	1 45	39752.91 P	330.40	0.83	Fail
24 Mg	1 45	14271.36 P	109.50	0.77	
27 Al	1 45	4994.94 P	80.43	1.61	Fail
39 K	1 45	17943.64 P	303.90	1.69	Fail
44 Ca	2 45	44499.37 P	1013.00	2.28	Fail
45 Sc	1 ---	23717.82 P	322.30	1.36	
45 Sc	2 ---	636252.19 P	8747.00	1.37	
47 Ti	1 45	260.45 P	4.29	1.65	
51 V	1 45	8111.23 P	111.80	1.38	Fail
51 V	2 ---	P			
52 Cr	1 45	10453.77 P	206.90	1.98	Fail
55 Mn	1 45	5603.14 P	113.10	2.02	Fail
56 Fe	1 72	175752.30 P	1996.00	1.14	Fail
59 Co	1 72	15995.25 P	156.40	0.98	
60 Ni	1 72	4365.03 P	94.09	2.16	Fail
60 Ni	2 ---	P			
63 Cu	1 72	12610.77 P	145.30	1.15	Fail
63 Cu	2 ---	P			
66 Zn	1 72	1902.79 P	44.07	2.32	Fail
66 Zn	2 ---	P			
72 Ge	1 ---	15331.10 P	177.70	1.16	
72 Ge	2 ---	P			
75 As	1 72	1109.92 P	10.60	0.96	
78 Se	1 72	108.74 P	5.84	5.37	Fail
88 Sr	2 115	81772.69 P	1370.00	1.68	Fail
95 Mo	2 115	14636.61 P	124.40	0.85	Fail
107 Ag	2 115	40265.03 P	339.30	0.84	Fail
111 Cd	2 115	8364.63 P	69.92	0.84	Fail
115 In	2 ---	801871.81 P	19040.00	2.37	
118 Sn	2 115	25636.83 P	392.60	1.53	Fail
121 Sb	2 115	33266.94 P	753.30	2.26	Fail
137 Ba	2 115	13478.13 P	330.60	2.45	Fail
205 Tl	2 209	64234.70 P	950.60	1.48	Fail
208 Pb	2 209	91220.01 P	1230.00	1.35	Fail
209 Bi	2 ---	582989.13 P	13590.00	2.33	

ISTD Elements

Element		CPS Mean	RSD (%)	Ref Value	Rec (%)	QC	Range (%)	Flag
6 Li	2	513280.00	1.01	502320.09	102.2	60 -	120	
45 Sc	1	23717.82	1.36	21794.10	108.8	60 -	120	
45 Sc	2	636252.19	1.37	614766.56	103.5	60 -	120	
72 Ge	1	15331.10	1.16	14399.89	106.5	60 -	120	
115 In	2	801871.81	2.37	778296.38	103.0	60 -	120	
209 Bi	2	582989.13	2.33	567156.00	102.8	60 -	120	

Calibration Standard QC Report

Acq. Method: DHL_2.m Sample Name: 250 & 5000ppb std 4
 Operator: AR Instrument: ICPMS2
 Date Acquired: Jul 18 2012 11:30 am
 Last Cal. Update: Jul 18 2012 11:27 am

QC&ISTD Elements

Element	CPS	Mean	SD	RSD (%)	
6 Li 2 ---	433615.91	P	3361.00	0.78	
7 Li 2 45	1644847.00	A	6658.00	0.40	Fail
9 Be 2 45	350098.09	P	3755.00	1.07	
11 B 2 45	230947.91	P	2532.00	1.10	Fail
23 Na 1 45	744507.50	P	4090.00	0.55	Fail
24 Mg 1 45	330160.31	P	606.10	0.18	
27 Al 1 45	109752.10	P	559.30	0.51	
39 K 1 45	315937.81	P	3569.00	1.13	Fail
44 Ca 2 45	958433.69	P	14010.00	1.46	Fail
45 Sc 1 ---	22626.01	P	109.60	0.48	
45 Sc 2 ---	623054.19	P	8917.00	1.43	
47 Ti 1 45	5829.44	P	21.19	0.36	
51 V 1 45	191053.41	P	1388.00	0.73	
51 V 2 ---		A			
52 Cr 1 45	244600.80	P	2073.00	0.85	
55 Mn 1 45	131510.70	P	663.30	0.50	
56 Fe 1 72	3535248.00	A	27130.00	0.77	
59 Co 1 72	376344.59	P	4069.00	1.08	
60 Ni 1 72	102541.20	P	175.10	0.17	
60 Ni 2 ---		P			
63 Cu 1 72	281914.50	P	2999.00	1.06	
63 Cu 2 ---		P			
66 Zn 1 72	42796.75	P	758.10	1.77	
66 Zn 2 ---		P			
72 Ge 1 ---	14746.16	P	77.84	0.53	
72 Ge 2 ---		P			
75 As 1 72	26356.70	P	164.60	0.62	
78 Se 1 72	2259.96	P	34.20	1.51	
88 Sr 2 115	2059228.00	A	37870.00	1.84	Fail
95 Mo 2 115	355915.69	P	4790.00	1.35	Fail
107 Ag 2 115	964035.19	P	10830.00	1.12	
111 Cd 2 115	199416.80	P	3002.00	1.51	
115 In 2 ---	774629.13	P	13540.00	1.75	
118 Sn 2 115	617897.00	P	9005.00	1.46	Fail
121 Sb 2 115	794851.13	P	14730.00	1.85	Fail
137 Ba 2 115	325774.59	P	4609.00	1.41	Fail
205 Tl 2 209	1631523.00	A	15370.00	0.94	
208 Pb 2 209	2200114.00	P	24830.00	1.13	Fail
209 Bi 2 ---	564894.19	P	7404.00	1.31	

ISTD Elements

Element	CPS	Mean	RSD (%)	Ref Value	Rec (%)	QC	Range (%)	Flag
6 Li 2	433615.97	0.78	502320.09	86.3	60 -	120		
45 Sc 1	22626.01	0.48	21794.10	103.8	60 -	120		
45 Sc 2	623054.19	1.43	614766.56	101.3	60 -	120		
72 Ge 1	14746.16	0.53	14399.89	102.4	60 -	120		
115 In 2	774629.13	1.75	778296.38	99.5	60 -	120		
209 Bi 2	564894.19	1.31	567156.00	99.6	60 -	120		

Calibration Standard QC Report

Acq. Method: DHL_2.m Sample Name: 500 & 10000ppb std
 Operator: AR Instrument: ICPMS2
 Date Acquired: Jul 18 2012 11:35 am
 Last Cal. Update: Jul 18 2012 11:33 am

QC&ISTD Elements

Element	CPS	Mean	SD	RSD(%)	
6 Li 2 ---	371085.69	P	4071.00	1.10	
7 Li 2 45	3181475.00	A	19500.00	0.61	Fail
9 Be 2 45	686788.88	P	7703.00	1.12	
11 B 2 45	460633.50	P	11310.00	2.46	Fail
23 Na 1 45	1506409.00	A	20180.00	1.34	
24 Mg 1 45	650912.31	P	11080.00	1.70	
27 Al 1 45	220690.59	P	4059.00	1.84	
39 K 1 45	627104.38	P	17500.00	2.79	
44 Ca 2 45	1905975.00	A	37460.00	1.97	Fail
45 Sc 1 ---	22481.15	P	14.64	0.07	
45 Sc 2 ---	612080.63	P	10490.00	1.71	
47 Ti 1 45	11234.67	P	264.60	2.36	
51 V 1 45	377196.50	P	5431.00	1.44	
51 V 2 ---		A			
52 Cr 1 45	477849.81	P	7539.00	1.58	
55 Mn 1 45	258674.09	P	4352.00	1.68	
56 Fe 1 72	6773653.00	A	97600.00	1.44	
59 Co 1 72	729031.00	P	3888.00	0.53	
60 Ni 1 72	197759.41	P	1945.00	0.98	
60 Ni 2 ---		P			
63 Cu 1 72	543839.88	P	7169.00	1.32	
63 Cu 2 ---		A			
66 Zn 1 72	82759.31	P	1130.00	1.37	
66 Zn 2 ---		P			
72 Ge 1 ---	14773.51	P	142.60	0.97	
72 Ge 2 ---		P			
75 As 1 72	51627.17	P	734.20	1.42	
78 Se 1 72	4476.98	P	53.70	1.20	
88 Sr 2 115	3975133.00	A	92130.00	2.32	
95 Mo 2 115	698238.50	P	13260.00	1.90	
107 Ag 2 115	1905714.00	A	41120.00	2.16	
111 Cd 2 115	389109.09	P	7712.00	1.98	
115 In 2 ---	765013.13	P	10070.00	1.32	
118 Sn 2 115	1209969.00	P	19540.00	1.61	Fail
121 Sb 2 115	1590291.00	A	13240.00	0.83	Fail
137 Ba 2 115	633549.13	P	13050.00	2.06	
205 Tl 2 209	3244094.00	A	47180.00	1.45	
208 Pb 2 209	4394029.00	A	56170.00	1.28	
209 Bi 2 ---	553517.00	P	13340.00	2.41	

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec (%)	QC	Range (%)	Flag
6 Li 2	371085.66	1.10	502320.09	73.9	60 -	120		
45 Sc 1	22481.15	0.07	21794.10	103.2	60 -	120		
45 Sc 2	612080.63	1.71	614766.56	99.6	60 -	120		
72 Ge 1	14773.51	0.97	14399.89	102.6	60 -	120		
115 In 2	765013.06	1.32	778296.38	98.3	60 -	120		
209 Bi 2	553517.00	2.41	567156.00	97.6	60 -	120		

Calibration Standard QC Report

Acq. Method: DHL_2.m Sample Name: 2000 ppb std 6
 Operator: AR Instrument: ICPMS2
 Date Acquired: Jul 18 2012 11:41 am
 Last Cal. Update: Jul 18 2012 11:39 am

QC&ISTD Elements

Element	CPS	Mean	SD	RSD (%)	Flag
6 Li 2 ---		42231.26 A	12240.00	28.98	ISFail
7 Li 2 45		12512240.00 A	50550.00	0.40	Fail
9 Be 2 45		2827459.00 A	2066.00	0.07	
11 B 2 45		2048105.00 A	12620.00	0.62	Fail
23 Na 1 45		3844175.00 A	18910.00	0.49	
24 Mg 1 45		1726719.00 A	21510.00	1.25	
27 Al 1 45		213.34 P	25.54	11.97	Fail
39 K 1 45		1674061.00 A	18730.00	1.12	
44 Ca 2 45		4707466.00 A	47360.00	1.01	Fail
45 Sc 1 ---		23526.90 P	254.20	1.08	
45 Sc 2 ---		613256.88 P	6475.00	1.06	
47 Ti 1 45		48968.69 P	518.80	1.06	
51 V 1 45		1607604.00 A	18440.00	1.15	
51 V 2 ---		A			
52 Cr 1 45		1986110.00 A	6662.00	0.34	
55 Mn 1 45		1081714.00 M	10600.00	0.98	
56 Fe 1 72		7118.36 P	123.20	1.73	Fail
59 Co 1 72		3037048.00 A	21960.00	0.72	
60 Ni 1 72		810639.31 P	7001.00	0.86	
60 Ni 2 ---		A			
63 Cu 1 72		2255176.00 A	13210.00	0.59	
63 Cu 2 ---		A			
66 Zn 1 72		343652.50 P	1521.00	0.44	
66 Zn 2 ---		A			
72 Ge 1 ---		15351.78 P	38.03	0.25	
72 Ge 2 ---		P			
75 As 1 72		218484.80 P	1092.00	0.50	
78 Se 1 72		18884.24 P	114.40	0.61	
88 Sr 2 115		15687350.00 A	132000.00	0.84	
95 Mo 2 115		2834458.00 A	6256.00	0.22	
107 Ag 2 115		417.80 P	26.74	6.40	Fail
111 Cd 2 115		1601498.00 A	8315.00	0.52	
115 In 2 ---		760489.88 P	5643.00	0.74	
118 Sn 2 115		4895807.00 A	33990.00	0.69	
121 Sb 2 115		2057.96 P	140.10	6.81	Fail
137 Ba 2 115		2630272.00 A	15840.00	0.60	
205 Tl 2 209		12570900.00 A	206800.00	1.65	
208 Pb 2 209		17489860.00 A	331500.00	1.90	
209 Bi 2 ---		542320.13 P	10880.00	2.01	

ISTD Elements

Element	CPS	Mean	RSD (%)	Ref Value	Rec (%)	QC	Range (%)	Flag
6 Li 2		42231.26	28.98	502320.09	8.4	60 -	120	ISFail
45 Sc 1		23526.90	1.08	21794.10	108.0	60 -	120	
45 Sc 2		613256.88	1.06	614766.56	99.8	60 -	120	
72 Ge 1		15351.78	0.25	14399.89	106.6	60 -	120	
115 In 2		760489.94	0.74	778296.38	97.7	60 -	120	
209 Bi 2		542320.13	2.01	567156.00	95.6	60 -	120	

ICSA QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\012ICSA.D\012ICSA.D#

Date Acquired: Jul 18 2012 11:58 am Sample Name: **ICSA-120718**
 Acq. Method: DHL_2.m Misc Info: ICSAICPMS_TW
 Operator: AR Diln Factor: 1.00
 Last Cal. Update: Jul 18 2012 11:44 am
 Instrument: ICPMS2

QC Elements

Element		Conc.	RSD(%)	RL S	RL Aq	Flag
7 Li	2	45 0.188 ppb	2.12	8.00	5.00	
9 Be	2	45 0.099 ppb	20.33	0.32	0.80	
11 B	2	45 15.830 ppb	2.48	30.00	30.00	
23 Na	1	45 98520.000 ppb	0.97	#####	#####	
24 Mg	1	45 99630.000 ppb	0.75	#####	#####	
27 Al	1	45 97590.000 ppb	0.40	#####	#####	
39 K	1	45 98020.000 ppb	0.89	#####	#####	
44 Ca	2	45 97380.000 ppb	0.25	#####	#####	
47 Ti	1	45 2118.000 ppb	1.36	10.00	10.00	
51 V	1	45 0.278 ppb	1.59	10.00	10.00	
52 Cr	1	45 0.999 ppb	2.22	8.00	5.00	
55 Mn	1	45 1.593 ppb	2.61	8.00	10.00	
56 Fe	1	72 95160.000 ppb	1.68	#####	#####	
59 Co	1	72 1.477 ppb	2.40	8.00	10.00	
60 Ni	1	72 1.716 ppb	0.30	8.00	10.00	
63 Cu	1	72 0.459 ppb	3.72	8.00	10.00	
66 Zn	1	72 1.677 ppb	1.37	10.00	5.00	
75 As	1	72 0.388 ppb	4.23	4.00	5.00	
78 Se	1	72 0.430 ppb	2.70	2.00	5.00	
88 Sr	2	115 0.547 ppb	1.49	10.00	10.00	
95 Mo	2	115 2118.000 ppb	1.18	8.00	5.00	
107 Ag	2	115 0.255 ppb	5.26	0.80	2.00	
111 Cd	2	115 0.463 ppb	16.64	1.20	1.00	
118 Sn	2	115 0.406 ppb	2.60	10.00	10.00	
121 Sb	2	115 0.342 ppb	5.68	4.00	2.50	
137 Ba	2	115 0.238 ppb	4.58	8.00	10.00	
205 Tl	2	209 0.284 ppb	4.49	4.00	1.50	
208 Pb	2	209 0.319 ppb	1.87	1.20	1.00	

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec (%)	QC Range(%)	Flag
6 Li	2	473656.81	1.63	502320.09	94.3	60 -	120	
45 Sc	1	23095.91	1.18	21794.10	106.0	60 -	120	
45 Sc	2	608151.56	1.02	614766.56	98.9	60 -	120	
72 Ge	1	15301.51	1.30	14399.89	106.3	60 -	120	
115 In	2	735794.00	1.43	778296.38	94.5	60 -	120	
209 Bi	2	512094.78	0.78	567156.00	90.3	60 -	120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\014ICSB.D\014ICSB.D#

Date Acquired: Jul 18 2012 12:10 pm Sample Name: **ICSB-120718**
 Acq. Method: DHL_2.m Misc Info: ICSBICPMS_TW
 Operator: AR Diln Factor: 1.00
 Last Cal. Update: Jul 18 2012 11:44 am
 Instrument: ICPMS2

QC Elements

Element	Conc.	RSD(%)	Expected QC	Range(%)	Flag
7 Li 2 45	0.07 ppb	1.18	---	80 - 120	
9 Be 2 45	0.05 ppb	7.67	---	80 - 120	
11 B 2 45	10.01 ppb	1.86	---	80 - 120	
23 Na 1 45	97420.00 ppb	1.84 100000.00	80 - 120		
24 Mg 1 45	98870.00 ppb	1.13 100000.00	80 - 120		
27 Al 1 45	96670.00 ppb	0.57 100000.00	80 - 120		
39 K 1 45	97800.00 ppb	1.25 100000.00	80 - 120		
44 Ca 2 45	96640.00 ppb	1.78 100000.00	80 - 120		
47 Ti 1 45	2115.00 ppb	1.34	---	80 - 120	
51 V 1 45	40.65 ppb	0.13	40.00	80 - 120	
52 Cr 1 45	21.27 ppb	1.58	20.00	80 - 120	
55 Mn 1 45	22.92 ppb	2.06	20.00	80 - 120	
56 Fe 1 72	94790.00 ppb	0.89 100000.00	80 - 120		
59 Co 1 72	40.26 ppb	1.34	40.00	80 - 120	
60 Ni 1 72	39.56 ppb	1.68	40.00	80 - 120	
63 Cu 1 72	19.39 ppb	1.33	20.00	80 - 120	
66 Zn 1 72	20.72 ppb	2.19	20.00	80 - 120	
75 As 1 72	19.19 ppb	1.36	20.00	80 - 120	
78 Se 1 72	17.62 ppb	0.89	20.00	80 - 120	
88 Sr 2 115	0.54 ppb	1.86	---	80 - 120	
95 Mo 2 115	2069.00 ppb	1.98	---	80 - 120	
107 Ag 2 115	19.28 ppb	2.98	20.00	80 - 120	
111 Cd 2 115	9.07 ppb	1.83	10.00	80 - 120	
118 Sn 2 115	0.45 ppb	5.85	---	80 - 120	
121 Sb 2 115	0.43 ppb	7.77	---	80 - 120	
137 Ba 2 115	0.28 ppb	16.00	---	80 - 120	
205 Tl 2 209	0.17 ppb	3.78	---	80 - 120	
208 Pb 2 209	0.42 ppb	4.11	---	80 - 120	

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li 2	469861.28	1.01	502320.09	93.5	60 - 120			
45 Sc 1	23427.89	1.74	21794.10	107.5	60 - 120			
45 Sc 2	611890.31	1.03	614766.56	99.5	60 - 120			
72 Ge 1	15599.32	1.09	14399.89	108.3	60 - 120			
115 In 2	747523.44	1.93	778296.38	96.0	60 - 120			
209 Bi 2	515620.25	1.82	567156.00	90.9	60 - 120			

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\017ICV.D\017ICV.D#

Date Acquired: Jul 18 2012 12:32 pm Sample Name: **ICV1-120718**
 Acq. Method: DHL_2.m Misc Info: ICPMS_TW
 Operator: AR Diln Factor: 1.00
 Last Cal. Update: Jul 18 2012 11:44 am
 Instrument: ICPMS2

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2	45	90.96 ppb	0.81	100.00	90 -	110 91.0
9 Be	2	45	92.51 ppb	0.49	100.00	90 -	110 92.5
11 B	2	45	95.57 ppb	1.64	100.00	90 -	110 95.6
23 Na	1	45	2482.00 ppb	1.57	2500.00	90 -	110 99.3
24 Mg	1	45	2506.00 ppb	1.73	2500.00	90 -	110 100.2
27 Al	1	45	2367.00 ppb	0.32	2500.00	90 -	110 94.7
39 K	1	45	2510.00 ppb	0.50	2500.00	90 -	110 100.4
44 Ca	2	45	2486.00 ppb	0.82	2500.00	90 -	110 99.4
47 Ti	1	45	104.00 ppb	1.98	100.00	90 -	110 104.0
51 V	1	45	98.26 ppb	2.43	100.00	90 -	110 98.3
52 Cr	1	45	103.30 ppb	1.71	100.00	90 -	110 103.3
55 Mn	1	45	102.70 ppb	0.36	100.00	90 -	110 102.7
56 Fe	1	72	2520.00 ppb	0.42	2500.00	90 -	110 100.8
59 Co	1	72	103.90 ppb	0.90	100.00	90 -	110 103.9
60 Ni	1	72	105.20 ppb	1.63	100.00	90 -	110 105.2
63 Cu	1	72	102.40 ppb	1.05	100.00	90 -	110 102.4
66 Zn	1	72	104.90 ppb	1.96	100.00	90 -	110 104.9
75 As	1	72	98.55 ppb	1.16	100.00	90 -	110 98.6
78 Se	1	72	101.20 ppb	0.20	100.00	90 -	110 101.2
88 Sr	2	115	98.46 ppb	2.13	100.00	90 -	110 98.5
95 Mo	2	115	100.20 ppb	1.03	100.00	90 -	110 100.2
107 Ag	2	115	96.62 ppb	0.93	100.00	90 -	110 96.6
111 Cd	2	115	96.87 ppb	2.34	100.00	90 -	110 96.9
118 Sn	2	115	101.70 ppb	1.61	100.00	90 -	110 101.7
121 Sb	2	115	93.68 ppb	0.81	100.00	90 -	110 93.7
137 Ba	2	115	94.31 ppb	0.05	100.00	90 -	110 94.3
205 Tl	2	209	95.42 ppb	1.23	100.00	90 -	110 95.4
208 Pb	2	209	95.65 ppb	0.97	100.00	90 -	110 95.7

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	479360.16	1.30	502320.09		95.4	60 -	120	
45 Sc	1	24051.16	1.54	21794.10		110.4	60 -	120	
45 Sc	2	632746.63	0.62	614766.56		102.9	60 -	120	
72 Ge	1	15695.19	0.66	14399.89		109.0	60 -	120	
115 In	2	809263.69	1.40	778296.38		104.0	60 -	120	
209 Bi	2	574412.88	0.45	567156.00		101.3	60 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\019LCVL.D\019LCVL.D#

Date Acquired:	Jul 18 2012 12:44 pm	Sample Name:	LCVL-120718
Acq. Method:	DHL_2.m	Misc Info:	LCVL6020A_W
Operator:	AR	Diln Factor:	1.00
Last Cal. Update:	Jul 18 2012 11:44 am		
Instrument:	ICPMS2		

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2	45	4.55 ppb	0.91	5.00	70 -	130 90.9
9 Be	2	45	0.91 ppb	3.45	1.00	70 -	130 90.8
11 B	2	45	21.51 ppb	1.08	5.00	70 -	130 430.2 Fail
23 Na	1	45	106.20 ppb	0.89	100.00	70 -	130 106.2
24 Mg	1	45	110.20 ppb	1.02	100.00	70 -	130 110.2
27 Al	1	45	101.10 ppb	0.76	100.00	70 -	130 101.1
39 K	1	45	101.80 ppb	1.56	100.00	70 -	130 101.8
44 Ca	2	45	99.46 ppb	1.77	100.00	70 -	130 99.5
47 Ti	1	45	5.50 ppb	5.45	5.00	70 -	130 110.0
51 V	1	45	1.03 ppb	4.86	1.00	70 -	130 102.8
52 Cr	1	45	5.21 ppb	2.16	5.00	70 -	130 104.2
55 Mn	1	45	5.21 ppb	0.95	5.00	70 -	130 104.3
56 Fe	1	72	128.00 ppb	1.33	100.00	70 -	130 128.0
59 Co	1	72	5.22 ppb	0.71	5.00	70 -	130 104.3
60 Ni	1	72	5.39 ppb	3.26	5.00	70 -	130 107.9
63 Cu	1	72	5.24 ppb	1.00	5.00	70 -	130 104.7
66 Zn	1	72	5.05 ppb	2.41	5.00	70 -	130 101.0
75 As	1	72	5.07 ppb	2.47	5.00	70 -	130 101.4
78 Se	1	72	5.12 ppb	8.93	5.00	70 -	130 102.4
88 Sr	2	115	4.88 ppb	2.38	5.00	70 -	130 97.7
95 Mo	2	115	5.40 ppb	3.30	5.00	70 -	130 108.0
107 Ag	2	115	1.99 ppb	0.95	2.00	70 -	130 99.4
111 Cd	2	115	0.98 ppb	7.06	1.00	70 -	130 98.0
118 Sn	2	115	4.99 ppb	1.23	5.00	70 -	130 99.7
121 Sb	2	115	1.85 ppb	2.93	2.00	70 -	130 92.7
137 Ba	2	115	4.68 ppb	2.09	5.00	70 -	130 93.5
205 Tl	2	209	1.09 ppb	4.60	1.00	70 -	130 108.8
208 Pb	2	209	0.95 ppb	1.93	1.00	70 -	130 95.3

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	490363.53	1.57	502320.09		97.6	60 -	120	
45 Sc	1	23142.21	1.37	21794.10		106.2	60 -	120	
45 Sc	2	644584.38	0.93	614766.56		104.9	60 -	120	
72 Ge	1	15143.61	1.83	14399.89		105.2	60 -	120	
115 In	2	823416.50	2.21	778296.38		105.8	60 -	120	
209 Bi	2	590224.19	2.01	567156.00		104.1	60 -	120	

ICB QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\020_ICB.D\020_ICB.D#

Date Acquired:	Jul 18 2012 12:51 pm	Sample Name:	ICB1-120718
Acq. Method:	DHL_2.m	Misc Info:	ICB ICPMS_TW
Operator:	AR	Diln Factor:	1.00
Last Cal. Update:	Jul 18 2012 11:44 am	Instrument:	ICPMS2

QC Elements

Element	Conc.	RSD (%)	High Limit	Flag
7 Li 2 45	-0.16 ppb	2.52	5.00	
9 Be 2 45	0.01 ppb	10.27	0.80	
11 B 2 45	2.45 ppb	1.80	10.00	
23 Na 1 45	7.00 ppb	0.92	50.00	
24 Mg 1 45	4.75 ppb	10.04	50.00	
27 Al 1 45	4.11 ppb	5.86	30.00	
39 K 1 45	4.67 ppb	0.72	50.00	
44 Ca 2 45	0.75 ppb	4.27	50.00	
47 Ti 1 45	0.15 ppb	68.65	10.00	
51 V 1 45	0.03 ppb	4.94	10.00	
52 Cr 1 45	0.01 ppb	3.73	3.00	
55 Mn 1 45	0.04 ppb	19.81	10.00	
56 Fe 1 72	5.27 ppb	1.19	50.00	
59 Co 1 72	0.03 ppb	18.48	3.00	
60 Ni 1 72	0.01 ppb	14.10	3.00	
63 Cu 1 72	-0.04 ppb	4.44	3.00	
66 Zn 1 72	-0.18 ppb	11.61	10.00	
75 As 1 72	0.02 ppb	19.87	10.00	
78 Se 1 72	0.09 ppb	6.27	10.00	
88 Sr 2 115	0.02 ppb	3.93	10.00	
95 Mo 2 115	0.43 ppb	6.15	10.00	
107 Ag 2 115	0.01 ppb	14.52	2.00	
111 Cd 2 115	0.01 ppb	42.93	1.00	
118 Sn 2 115	0.06 ppb	10.22	10.00	
121 Sb 2 115	-0.07 ppb	9.06	1.00	
137 Ba 2 115	0.02 ppb	11.89	3.00	
205 Tl 2 209	0.08 ppb	3.76	1.00	
208 Pb 2 209	0.00 ppb	2.63	1.00	

ISTD Elements

Element	CPS	Mean	RSD (%)	Ref Value	Rec (%)	QC Range (%)	Flag
6 Li 2	483839.72	1.75	502320.09	96.3	60 -	120	
45 Sc 1	23236.32	0.49	21794.10	106.6	60 -	120	
45 Sc 2	630670.31	0.34	614766.56	102.6	60 -	120	
72 Ge 1	15360.69	0.73	14399.89	106.7	60 -	120	
115 In 2	809378.50	1.09	778296.38	104.0	60 -	120	
209 Bi 2	582573.19	2.11	567156.00	102.7	60 -	120	

PB QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\021__PB.D\021__PB.D#

Date Acquired:	Jul 18 2012 12:57 pm	Sample Name:	MB-52757
Acq. Method:	DHL_2.m	Misc Info:	MBLK6020A_W
Operator:	AR	Bench Diln:	1.00
Last Cal. Update:	Jul 18 2012 11:44 am	Auto Dil:	Undiluted
Instrument:	ICPMS2	Total Dil:	1.00

QC Elements

Element		Conc.	RSD (%)	MDL	RL	Flag
7 Li	2	45	-0.112 ppb	0.60	2.0	5.00
9 Be	2	45	0.002 ppb	17.63	0.3	0.80
11 B	2	45	1.171 ppb	1.10	10.0	30.00
23 Na	1	45	8.642 ppb	3.06	100.0	#####
24 Mg	1	45	6.442 ppb	6.26	100.0	#####
27 Al	1	45	3.402 ppb	1.59	10.0	30.00
39 K	1	45	7.473 ppb	0.31	100.0	#####
44 Ca	2	45	-4.465 ppb	2.73	100.0	#####
47 Ti	1	45	0.094 ppb	57.29	3.0	10.00
51 V	1	45	0.027 ppb	6.05	3.0	10.00
52 Cr	1	45	0.008 ppb	7.47	2.0	5.00
55 Mn	1	45	0.048 ppb	7.94	3.0	10.00
56 Fe	1	72	7.360 ppb	1.29	50.0	#####
59 Co	1	72	0.034 ppb	7.36	3.0	10.00
60 Ni	1	72	-0.010 ppb	22.12	3.0	10.00
63 Cu	1	72	-0.012 ppb	3.08	2.0	10.00
66 Zn	1	72	1.149 ppb	10.86	2.0	5.00
75 As	1	72	0.051 ppb	3.99	2.0	5.00
78 Se	1	72	0.053 ppb	17.70	2.0	5.00
88 Sr	2	115	-0.004 ppb	7.35	3.0	10.00
95 Mo	2	115	0.354 ppb	3.76	2.0	5.00
107 Ag	2	115	0.010 ppb	16.54	1.0	2.00
111 Cd	2	115	0.009 ppb	21.32	0.3	1.00
118 Sn	2	115	0.168 ppb	5.89	3.0	10.00
121 Sb	2	115	-0.033 ppb	6.36	0.8	2.50
137 Ba	2	115	0.015 ppb	14.37	3.0	10.00
205 Tl	2	209	0.070 ppb	10.41	0.5	1.50
208 Pb	2	209	0.007 ppb	7.57	0.3	1.00

ISTD Elements

Element	CPS	Mean	RSD (%)	Ref Value	Rec (%)	QC Range (%)	Flag
6 Li	2	474281.72	0.34	502320.09	94.4	60 - 120	
45 Sc	1	22918.57	0.85	21794.10	105.2	60 - 120	
45 Sc	2	618833.13	1.02	614766.56	100.7	60 - 120	
72 Ge	1	15342.00	1.70	14399.89	106.5	60 - 120	
115 In	2	798148.56	2.23	778296.38	102.6	60 - 120	
209 Bi	2	575314.81	1.46	567156.00	101.4	60 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\022_LCS.D\022_LCS.D#

Date Acquired:	Jul 18 2012 01:03 pm	Sample Name:	LCS-52757
Acq. Method:	DHL_2.m	Misc Info:	LCS 6020A_W
Operator:	AR	Bench Diln:	1.00
Last Cal. Update:	Jul 18 2012 11:44 am	Auto Dil:	Undiluted
Instrument:	ICPMS2	Total Dil:	1.00

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2	45	193.40 ppb	0.74	200.00	80 -	120 96.7
9 Be	2	45	187.30 ppb	1.00	200.00	80 -	120 93.7
11 B	2	45	188.70 ppb	0.22	200.00	80 -	120 94.4
23 Na	1	45	4881.00 ppb	0.70	5000.00	80 -	120 97.6
24 Mg	1	45	4875.00 ppb	0.93	5000.00	80 -	120 97.5
27 Al	1	45	4721.00 ppb	1.48	5000.00	80 -	120 94.4
39 K	1	45	4886.00 ppb	0.27	5000.00	80 -	120 97.7
44 Ca	2	45	4855.00 ppb	0.45	5000.00	80 -	120 97.1
47 Ti	1	45	200.80 ppb	0.95	200.00	80 -	120 100.4
51 V	1	45	196.30 ppb	0.42	200.00	80 -	120 98.2
52 Cr	1	45	201.40 ppb	0.47	200.00	80 -	120 100.7
55 Mn	1	45	202.80 ppb	0.54	200.00	80 -	120 101.4
56 Fe	1	72	5021.00 ppb	0.17	5000.00	80 -	120 100.4
59 Co	1	72	200.60 ppb	0.54	200.00	80 -	120 100.3
60 Ni	1	72	203.40 ppb	1.14	200.00	80 -	120 101.7
63 Cu	1	72	200.60 ppb	0.95	200.00	80 -	120 100.3
66 Zn	1	72	205.30 ppb	0.96	200.00	80 -	120 102.7
75 As	1	72	196.40 ppb	0.41	200.00	80 -	120 98.2
78 Se	1	72	199.00 ppb	1.08	200.00	80 -	120 99.5
88 Sr	2	115	199.70 ppb	1.69	200.00	80 -	120 99.9
95 Mo	2	115	196.50 ppb	1.12	200.00	80 -	120 98.3
107 Ag	2	115	192.80 ppb	1.38	200.00	80 -	120 96.4
111 Cd	2	115	195.60 ppb	0.10	200.00	80 -	120 97.8
118 Sn	2	115	197.50 ppb	1.33	200.00	80 -	120 98.8
121 Sb	2	115	188.00 ppb	1.32	200.00	80 -	120 94.0
137 Ba	2	115	188.30 ppb	0.44	200.00	80 -	120 94.2
205 Tl	2	209	193.60 ppb	0.68	200.00	80 -	120 96.8
208 Pb	2	209	192.70 ppb	0.95	200.00	80 -	120 96.4

ISTD Elements

Element	CPS	Mean RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2	418723.78	1.40	502320.09	83.4	60 - 120
45 Sc	1	22458.02	1.55	21794.10	103.0	60 - 120
45 Sc	2	602448.88	1.24	614766.56	98.0	60 - 120
72 Ge	1	14814.22	1.02	14399.89	102.9	60 - 120
115 In	2	768312.38	0.55	778296.38	98.7	60 - 120
209 Bi	2	547874.56	0.14	567156.00	96.6	60 - 120

LCS QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\023_LCS.D\023_LCS.D#

Date Acquired: Jul 18 2012 01:09 pm Sample Name: **LCSD-52757**
 Acq. Method: DHL_2.m Misc Info: LCSD6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:44 am Auto Dil: Undiluted
 Instrument: ICPMS2 Total Dil: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2 45	190.80 ppb	2.24	200.00	80 -	120 95.4
9 Be	2 45	186.10 ppb	1.35	200.00	80 -	120 93.1
11 B	2 45	193.70 ppb	1.38	200.00	80 -	120 96.9
23 Na	1 45	4858.00 ppb	0.69	5000.00	80 -	120 97.2
24 Mg	1 45	4876.00 ppb	0.89	5000.00	80 -	120 97.5
27 Al	1 45	4704.00 ppb	0.76	5000.00	80 -	120 94.1
39 K	1 45	4836.00 ppb	0.20	5000.00	80 -	120 96.7
44 Ca	2 45	4843.00 ppb	0.39	5000.00	80 -	120 96.9
47 Ti	1 45	195.60 ppb	0.12	200.00	80 -	120 97.8
51 V	1 45	196.90 ppb	0.95	200.00	80 -	120 98.5
52 Cr	1 45	201.60 ppb	0.23	200.00	80 -	120 100.8
55 Mn	1 45	200.60 ppb	0.71	200.00	80 -	120 100.3
56 Fe	1 72	4985.00 ppb	0.78	5000.00	80 -	120 99.7
59 Co	1 72	198.90 ppb	0.95	200.00	80 -	120 99.5
60 Ni	1 72	203.60 ppb	0.33	200.00	80 -	120 101.8
63 Cu	1 72	199.80 ppb	0.91	200.00	80 -	120 99.9
66 Zn	1 72	202.00 ppb	0.52	200.00	80 -	120 101.0
75 As	1 72	196.80 ppb	0.39	200.00	80 -	120 98.4
78 Se	1 72	198.20 ppb	0.69	200.00	80 -	120 99.1
88 Sr	2 115	200.00 ppb	0.41	200.00	80 -	120 100.0
95 Mo	2 115	197.40 ppb	0.69	200.00	80 -	120 98.7
107 Ag	2 115	194.30 ppb	1.38	200.00	80 -	120 97.2
111 Cd	2 115	196.10 ppb	0.96	200.00	80 -	120 98.1
118 Sn	2 115	197.10 ppb	0.88	200.00	80 -	120 98.6
121 Sb	2 115	187.70 ppb	0.34	200.00	80 -	120 93.9
137 Ba	2 115	186.80 ppb	0.96	200.00	80 -	120 93.4
205 Tl	2 209	195.00 ppb	0.20	200.00	80 -	120 97.5
208 Pb	2 209	193.00 ppb	0.59	200.00	80 -	120 96.5

ISTD Elements

Element	CPS	Mean RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2	416757.25	1.16	502320.09	83.0	60 - 120
45 Sc	1	22362.34	0.78	21794.10	102.6	60 - 120
45 Sc	2	606251.31	0.23	614766.56	98.6	60 - 120
72 Ge	1	14802.21	1.33	14399.89	102.8	60 - 120
115 In	2	768983.50	1.07	778296.38	98.8	60 - 120
209 Bi	2	548733.56	1.25	567156.00	96.8	60 - 120

DT QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\026DT1.D\026DT1.D#

Date Acquired: Jul 18 2012 01:27 pm Sample Name: **1207123-01E SD**
 Acq. Method: DHL_2.m Misc Info: SD 6020A_W
 Operator: AR Bench Diln: 5.00
 Last Cal. Update: Jul 18 2012 11:44 am Auto Diln: Undiluted
 Instrument: ICPMS2 Total Diln: 5.00

QC Elements

Element	Conc.	RSD(%)	Expected QC	QC Range(%)	Rec(%)	Flag
7 Li	2 45	12.62 ppb	1.75	473939.56	90 - 110	0.0
9 Be	2 45	0.18 ppb	5.17	0.90	90 - 110	102.4 GOOD
11 B	2 45	11.43 ppb	2.30	40.95	90 - 110	139.6
23 Na	1 45	983.50 ppb	1.18	4742.00	90 - 110	103.7 GOOD
24 Mg	1 45	398.20 ppb	0.71	1906.00	90 - 110	104.5 GOOD
27 Al	1 45	107.10 ppb	4.42	496.80	90 - 110	107.8 GOOD
39 K	1 45	334.30 ppb	0.09	1617.00	90 - 110	103.4 GOOD
44 Ca	2 45	429.80 ppb	0.44	1967.00	90 - 110	109.3 GOOD
47 Ti	1 45	0.28 ppb	83.40	0.20	90 - 110	713.3
51 V	1 45	0.08 ppb	13.90	0.09	90 - 110	424.0
52 Cr	1 45	0.09 ppb	1.54	0.22	90 - 110	195.1
55 Mn	1 45	17.65 ppb	1.03	79.78	90 - 110	110.6
56 Fe	1 72	7.93 ppb	2.17	15.80	90 - 110	250.9
59 Co	1 72	2.71 ppb	1.64	13.12	90 - 110	103.4 GOOD
60 Ni	1 72	3.05 ppb	3.32	14.25	90 - 110	106.9 GOOD
63 Cu	1 72	0.25 ppb	6.33	0.55	90 - 110	222.6
66 Zn	1 72	21.17 ppb	0.51	98.26	90 - 110	107.7 GOOD
75 As	1 72	0.08 ppb	9.25	0.12	90 - 110	319.7
78 Se	1 72	0.16 ppb	10.65	0.39	90 - 110	200.6
88 Sr	2 115	8.18 ppb	1.97	40.16	90 - 110	101.8 GOOD
95 Mo	2 115	0.45 ppb	5.71	0.56	90 - 110	403.5
107 Ag	2 115	0.03 ppb	8.49	0.03	90 - 110	427.6
111 Cd	2 115	0.04 ppb	34.03	0.15	90 - 110	145.4
118 Sn	2 115	0.37 ppb	0.74	0.18	90 - 110	1032.0
121 Sb	2 115	-0.01 ppb	7.85	-0.04	90 - 110	145.0
137 Ba	2 115	24.01 ppb	0.36	119.00	90 - 110	100.9 GOOD
205 Tl	2 209	0.22 ppb	4.65	0.28	90 - 110	397.9
208 Pb	2 209	0.08 ppb	5.92	0.33	90 - 110	118.7

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2	473939.56	1.39	502320.09	94.4	60 - 120	
45 Sc	1	21993.91	0.73	21794.10	100.9	60 - 120	
45 Sc	2	624371.06	0.88	614766.56	101.6	60 - 120	
72 Ge	1	14941.89	0.79	14399.89	103.8	60 - 120	
115 In	2	794937.38	1.28	778296.38	102.1	60 - 120	
209 Bi	2	583068.31	0.62	567156.00	102.8	60 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\027SMPL.D\027SMPL.D#

Date Acquired: Jul 18 2012 01:33 pm Sample Name: **1207088-01A**
 Acq. Method: DHL_2.m Misc Info: SAMP6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:44 am
 Instrument: ICPMS2

QC Elements

Element	Conc.	Corr. Con	RSD(%)	High Limit	Flag	
7 Li 2 45	29.530 ppb	0.00	0.55	500.00	>RL	Li
9 Be 2 45	0.019 ppb	0.00	7.59	2000.00	ND	Be
11 B 2 45	679.400 ppb	0.00	1.08	500.00	OUTCAL	B
23 Na 1 45	38290.000 ppb	0.00	1.17	25000.00	OUTCAL	Na
24 Mg 1 45	9248.000 ppb	0.00	0.48	25000.00	>RL	Mg
27 Al 1 45	71.880 ppb	0.00	3.23	10000.00	>RL	Al
39 K 1 45	8212.000 ppb	0.00	1.34	25000.00	>RL	K
44 Ca 2 45	163600.000 ppb	0.00	0.68	25000.00	OUTCAL	Ca
47 Ti 1 45	0.912 ppb	0.00	6.25	500.00	ND	Ti
51 V 1 45	0.833 ppb	0.00	2.44	2000.00	ND	V
52 Cr 1 45	0.317 ppb	0.00	5.61	2000.00	ND	Cr
55 Mn 1 45	71.130 ppb	0.00	0.37	2000.00	>RL	Mn
56 Fe 1 72	242.100 ppb	0.00	0.90	10000.00	>RL	Fe
59 Co 1 72	0.352 ppb	0.00	4.81	2000.00	ND	Co
60 Ni 1 72	0.719 ppb	0.00	1.56	2000.00	ND	Ni
63 Cu 1 72	0.823 ppb	0.00	1.25	2000.00	ND	Cu
66 Zn 1 72	20.670 ppb	0.00	2.20	2000.00	>RL	Zn
75 As 1 72	0.499 ppb	0.00	3.45	2000.00	ND	As
78 Se 1 72	1.784 ppb	0.00	3.82	2000.00	ND	Se
88 Sr 2 115	827.800 ppb	0.00	0.59	500.00	OUTCAL	Sr
95 Mo 2 115	0.784 ppb	0.00	4.78	500.00	ND	Mo
107 Ag 2 115	0.026 ppb	0.00	12.94	500.00	ND	Ag
111 Cd 2 115	0.113 ppb	0.00	38.74	2000.00	ND	Cd
118 Sn 2 115	0.236 ppb	0.00	3.79	500.00	ND	Sn
121 Sb 2 115	1.533 ppb	0.00	2.61	500.00	J	Sb
137 Ba 2 115	90.260 ppb	0.00	1.93	2000.00	>RL	Ba
205 Tl 2 209	0.146 ppb	0.00	6.47	500.00	ND	Tl
208 Pb 2 209	0.690 ppb	0.00	0.34	2000.00	J	Pb

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li 2	462507.91	0.54		502320.09	92.1	60 -	120	
45 Sc 1		21799.46	1.31	21794.10	100.0	60 -	120	
45 Sc 2		623938.88	0.70	614766.56	101.5	60 -	120	
72 Ge 1		14573.14	1.20	14399.89	101.2	60 -	120	
115 In 2		772625.69	0.77	778296.38	99.3	60 -	120	
209 Bi 2		550883.13	1.25	567156.00	97.1	60 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\028SMPL.D\028SMPL.D#

Date Acquired: Jul 18 2012 01:39 pm Sample Name: **1207088-02A**
 Acq. Method: DHL_2.m Misc Info: SAMP6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:44 am
 Instrument: ICPMS2

QC Elements

Element	Conc.	Corr.	Con	RSD(%)	High Limit	Flag	
7 Li 2 45	12.760 ppb		0.00	0.59	500.00	>RL	Li
9 Be 2 45	0.004 ppb		0.00	15.59	2000.00	ND	Be
11 B 2 45	481.300 ppb		0.00	1.36	500.00	>RL	B
23 Na 1 45	23800.000 ppb		0.00	0.35	25000.00	>RL	Na
24 Mg 1 45	8367.000 ppb		0.00	1.07	25000.00	>RL	Mg
27 Al 1 45	12.830 ppb		0.00	8.57	10000.00	J	Al
39 K 1 45	9283.000 ppb		0.00	1.15	25000.00	>RL	K
44 Ca 2 45	147800.000 ppb		0.00	0.73	25000.00	OUTCAL	Ca
47 Ti 1 45	0.258 ppb		0.00	69.28	500.00	ND	Ti
51 V 1 45	13.100 ppb		0.00	0.83	2000.00	>RL	V
52 Cr 1 45	0.251 ppb		0.00	2.69	2000.00	ND	Cr
55 Mn 1 45	14.580 ppb		0.00	2.56	2000.00	>RL	Mn
56 Fe 1 72	42.610 ppb		0.00	1.99	10000.00	ND	Fe
59 Co 1 72	0.719 ppb		0.00	1.59	2000.00	ND	Co
60 Ni 1 72	0.452 ppb		0.00	6.84	2000.00	ND	Ni
63 Cu 1 72	0.664 ppb		0.00	2.25	2000.00	ND	Cu
66 Zn 1 72	5.292 ppb		0.00	2.74	2000.00	>RL	Zn
75 As 1 72	80.970 ppb		0.00	0.91	2000.00	>RL	As
78 Se 1 72	38.450 ppb		0.00	0.88	2000.00	>RL	Se
88 Sr 2 115	442.900 ppb		0.00	0.55	500.00	>RL	Sr
95 Mo 2 115	24.210 ppb		0.00	2.98	500.00	>RL	Mo
107 Ag 2 115	0.013 ppb		0.00	8.81	500.00	ND	Ag
111 Cd 2 115	0.066 ppb		0.00	16.10	2000.00	ND	Cd
118 Sn 2 115	0.229 ppb		0.00	5.94	500.00	ND	Sn
121 Sb 2 115	249.400 ppb		0.00	0.68	500.00	>RL	Sb
137 Ba 2 115	61.930 ppb		0.00	0.64	2000.00	>RL	Ba
205 Tl 2 209	0.156 ppb		0.00	8.26	500.00	ND	Tl
208 Pb 2 209	0.084 ppb		0.00	6.18	2000.00	ND	Pb

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li 2	459082.38	0.88		502320.09	91.4	60 -	120	
45 Sc 1	20823.88	1.47		21794.10	95.5	60 -	120	
45 Sc 2	612245.00	1.39		614766.56	99.6	60 -	120	
72 Ge 1	14920.52	0.15		14399.89	103.6	60 -	120	
115 In 2	766749.75	1.61		778296.38	98.5	60 -	120	
209 Bi 2	548574.50	1.15		567156.00	96.7	60 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\029SMPL.D\029SMPL.D#

Date Acquired: Jul 18 2012 01:45 pm Sample Name: **1207088-03A**
 Acq. Method: DHL_2.m Misc Info: SAMP6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:44 am
 Instrument: ICPMS2

QC Elements

Element	Conc.	Corr. Con	RSD(%)	High Limit	Flag	
7 Li 2 45	59.600 ppb	0.00	1.23	500.00	>RL	Li
9 Be 2 45	-0.007 ppb	0.00	1.90	2000.00	ND	Be
11 B 2 45	552.200 ppb	0.00	1.37	500.00	OUTCAL	B
23 Na 1 45	42420.000 ppb	0.00	0.75	25000.00	OUTCAL	Na
24 Mg 1 45	10170.000 ppb	0.00	0.33	25000.00	>RL	Mg
27 Al 1 45	7.993 ppb	0.00	3.42	10000.00	ND	Al
39 K 1 45	2457.000 ppb	0.00	0.89	25000.00	>RL	K
44 Ca 2 45	114800.000 ppb	0.00	1.58	25000.00	OUTCAL	Ca
47 Ti 1 45	0.587 ppb	0.00	52.92	500.00	ND	Ti
51 V 1 45	0.479 ppb	0.00	10.20	2000.00	ND	V
52 Cr 1 45	0.045 ppb	0.00	9.86	2000.00	ND	Cr
55 Mn 1 45	110.500 ppb	0.00	1.11	2000.00	>RL	Mn
56 Fe 1 72	302.600 ppb	0.00	0.46	10000.00	>RL	Fe
59 Co 1 72	1.063 ppb	0.00	2.27	2000.00	ND	Co
60 Ni 1 72	0.798 ppb	0.00	8.57	2000.00	ND	Ni
63 Cu 1 72	0.319 ppb	0.00	5.99	2000.00	ND	Cu
66 Zn 1 72	8.131 ppb	0.00	1.05	2000.00	>RL	Zn
75 As 1 72	3.018 ppb	0.00	1.35	2000.00	J	As
78 Se 1 72	0.184 ppb	0.00	7.12	2000.00	ND	Se
88 Sr 2 115	1046.000 ppb	0.00	1.53	500.00	OUTCAL	Sr
95 Mo 2 115	1.395 ppb	0.00	3.10	500.00	ND	Mo
107 Ag 2 115	0.013 ppb	0.00	11.66	500.00	ND	Ag
111 Cd 2 115	0.003 ppb	0.00	35.44	2000.00	ND	Cd
118 Sn 2 115	0.324 ppb	0.00	3.56	500.00	ND	Sn
121 Sb 2 115	0.219 ppb	0.00	2.94	500.00	ND	Sb
137 Ba 2 115	50.820 ppb	0.00	1.45	2000.00	>RL	Ba
205 Tl 2 209	0.110 ppb	0.00	2.85	500.00	ND	Tl
208 Pb 2 209	0.036 ppb	0.00	6.74	2000.00	ND	Pb

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li 2	458610.19	0.45		502320.09	91.3	60 -	120	
45 Sc 1	20518.21	0.87		21794.10	94.1	60 -	120	
45 Sc 2	605133.00	0.95		614766.56	98.4	60 -	120	
72 Ge 1	13831.66	0.56		14399.89	96.1	60 -	120	
115 In 2	759332.81	0.79		778296.38	97.6	60 -	120	
209 Bi 2	551963.06	1.82		567156.00	97.3	60 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\030SMPL.D\030SMPL.D#

Date Acquired: Jul 18 2012 01:50 pm Sample Name: **1207088-04A**
 Acq. Method: DHL_2.m Misc Info: SAMP6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:44 am
 Instrument: ICPMS2

QC Elements

Element	Conc.	Corr.	Con	RSD(%)	High Limit	Flag	
7 Li 2 45	93.990 ppb		0.00	0.93	500.00	>RL	Li
9 Be 2 45	-0.013 ppb		0.00	31.16	2000.00	ND	Be
11 B 2 45	940.200 ppb		0.00	2.22	500.00	OUTCAL	B
23 Na 1 45	84190.000 ppb		0.00	0.55	25000.00	OUTCAL	Na
24 Mg 1 45	16550.000 ppb		0.00	0.67	25000.00	>RL	Mg
27 Al 1 45	9.071 ppb		0.00	3.60	10000.00	ND	Al
39 K 1 45	3410.000 ppb		0.00	0.36	25000.00	>RL	K
44 Ca 2 45	148000.000 ppb		0.00	2.20	25000.00	OUTCAL	Ca
47 Ti 1 45	0.070 ppb		0.00	49.99	500.00	ND	Ti
51 V 1 45	0.740 ppb		0.00	6.86	2000.00	ND	V
52 Cr 1 45	0.083 ppb		0.00	5.50	2000.00	ND	Cr
55 Mn 1 45	148.200 ppb		0.00	1.60	2000.00	>RL	Mn
56 Fe 1 72	35.110 ppb		0.00	1.59	10000.00	ND	Fe
59 Co 1 72	1.024 ppb		0.00	2.54	2000.00	ND	Co
60 Ni 1 72	1.560 ppb		0.00	2.44	2000.00	ND	Ni
63 Cu 1 72	1.304 ppb		0.00	0.77	2000.00	ND	Cu
66 Zn 1 72	12.480 ppb		0.00	2.50	2000.00	>RL	Zn
75 As 1 72	0.757 ppb		0.00	0.59	2000.00	ND	As
78 Se 1 72	0.214 ppb		0.00	9.64	2000.00	ND	Se
88 Sr 2 115	1943.000 ppb		0.00	1.10	500.00	OUTCAL	Sr
95 Mo 2 115	1.754 ppb		0.00	4.99	500.00	ND	Mo
107 Ag 2 115	0.011 ppb		0.00	9.64	500.00	ND	Ag
111 Cd 2 115	-0.002 ppb		0.00	31.76	2000.00	ND	Cd
118 Sn 2 115	0.132 ppb		0.00	3.06	500.00	ND	Sn
121 Sb 2 115	0.313 ppb		0.00	3.37	500.00	ND	Sb
137 Ba 2 115	37.460 ppb		0.00	2.41	2000.00	>RL	Ba
205 Tl 2 209	0.086 ppb		0.00	5.98	500.00	ND	Tl
208 Pb 2 209	0.055 ppb		0.00	4.29	2000.00	ND	Pb

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li 2	449783.94	0.30		502320.09	89.5	60 -	120	
45 Sc 1	20203.64	0.94		21794.10	92.7	60 -	120	
45 Sc 2	600961.44	0.90		614766.56	97.8	60 -	120	
72 Ge 1	13479.16	1.42		14399.89	93.6	60 -	120	
115 In 2	742993.13	1.04		778296.38	95.5	60 -	120	
209 Bi 2	536515.50	0.77		567156.00	94.6	60 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\031SMPL.D\031SMPL.D#

Date Acquired: Jul 18 2012 01:56 pm Sample Name: **1207088-05A**
 Acq. Method: DHL_2.m Misc Info: SAMP6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:44 am
 Instrument: ICPMS2

QC Elements

Element	Conc.	Corr.	Con	RSD(%)	High Limit	Flag	
7 Li 2 45	47.930 ppb		0.00	0.58	500.00	>RL	Li
9 Be 2 45	0.006 ppb		0.00	23.41	2000.00	ND	Be
11 B 2 45	399.300 ppb		0.00	1.62	500.00	>RL	B
23 Na 1 45	57480.000 ppb		0.00	1.03	25000.00	OUTCAL	Na
24 Mg 1 45	17490.000 ppb		0.00	0.81	25000.00	>RL	Mg
27 Al 1 45	77.860 ppb		0.00	2.57	10000.00	>RL	Al
39 K 1 45	4217.000 ppb		0.00	1.93	25000.00	>RL	K
44 Ca 2 45	254200.000 ppb		0.00	1.78	25000.00	OUTCAL	Ca
47 Ti 1 45	1.751 ppb		0.00	25.31	500.00	ND	Ti
51 V 1 45	2.548 ppb		0.00	3.03	2000.00	ND	V
52 Cr 1 45	0.350 ppb		0.00	4.87	2000.00	ND	Cr
55 Mn 1 45	55.550 ppb		0.00	0.62	2000.00	>RL	Mn
56 Fe 1 72	428.900 ppb		0.00	0.74	10000.00	>RL	Fe
59 Co 1 72	1.491 ppb		0.00	2.30	2000.00	ND	Co
60 Ni 1 72	4.031 ppb		0.00	2.77	2000.00	J	Ni
63 Cu 1 72	0.807 ppb		0.00	2.39	2000.00	ND	Cu
66 Zn 1 72	9.271 ppb		0.00	2.35	2000.00	>RL	Zn
75 As 1 72	5.948 ppb		0.00	0.19	2000.00	>RL	As
78 Se 1 72	0.948 ppb		0.00	8.68	2000.00	ND	Se
88 Sr 2 115	1390.000 ppb		0.00	1.30	500.00	OUTCAL	Sr
95 Mo 2 115	10.360 ppb		0.00	0.17	500.00	>RL	Mo
107 Ag 2 115	0.018 ppb		0.00	14.77	500.00	ND	Ag
111 Cd 2 115	0.053 ppb		0.00	10.00	2000.00	ND	Cd
118 Sn 2 115	0.148 ppb		0.00	6.63	500.00	ND	Sn
121 Sb 2 115	8.284 ppb		0.00	1.70	500.00	>RL	Sb
137 Ba 2 115	42.640 ppb		0.00	2.19	2000.00	>RL	Ba
205 Tl 2 209	0.060 ppb		0.00	3.91	500.00	ND	Tl
208 Pb 2 209	0.705 ppb		0.00	0.29	2000.00	J	Pb

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li 2	454709.41	0.73		502320.09	90.5	60 -	120	
45 Sc 1		21710.00	1.06	21794.10	99.6	60 -	120	
45 Sc 2		615621.81	1.12	614766.56	100.1	60 -	120	
72 Ge 1		14302.23	0.83	14399.89	99.3	60 -	120	
115 In 2		757315.56	0.98	778296.38	97.3	60 -	120	
209 Bi 2		542385.75	1.27	567156.00	95.6	60 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\032SMPL.D\032SMPL.D#

Date Acquired: Jul 18 2012 02:02 pm Sample Name: **1207088-06A**
 Acq. Method: DHL_2.m Misc Info: SAMP6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:44 am
 Instrument: ICPMS2

QC Elements

Element	Conc.	Corr. Con	RSD(%)	High Limit	Flag	
7 Li 2 45	11.190 ppb	0.00	2.25	500.00	>RL	Li
9 Be 2 45	-0.018 ppb	0.00	22.15	2000.00	ND	Be
11 B 2 45	249.600 ppb	0.00	0.80	500.00	>RL	B
23 Na 1 45	58800.000 ppb	0.00	1.56	25000.00	OUTCAL	Na
24 Mg 1 45	18170.000 ppb	0.00	0.24	25000.00	>RL	Mg
27 Al 1 45	18.920 ppb	0.00	11.35	10000.00	J	Al
39 K 1 45	6793.000 ppb	0.00	0.89	25000.00	>RL	K
44 Ca 2 45	132500.000 ppb	0.00	1.05	25000.00	OUTCAL	Ca
47 Ti 1 45	0.124 ppb	0.00	66.67	500.00	ND	Ti
51 V 1 45	4.789 ppb	0.00	1.71	2000.00	J	V
52 Cr 1 45	0.023 ppb	0.00	4.51	2000.00	ND	Cr
55 Mn 1 45	0.717 ppb	0.00	7.00	2000.00	ND	Mn
56 Fe 1 72	20.030 ppb	0.00	0.23	10000.00	ND	Fe
59 Co 1 72	0.035 ppb	0.00	7.04	2000.00	ND	Co
60 Ni 1 72	0.577 ppb	0.00	10.06	2000.00	ND	Ni
63 Cu 1 72	0.273 ppb	0.00	1.29	2000.00	ND	Cu
66 Zn 1 72	2.025 ppb	0.00	4.95	2000.00	J	Zn
75 As 1 72	1.130 ppb	0.00	4.10	2000.00	ND	As
78 Se 1 72	17.750 ppb	0.00	2.49	2000.00	>RL	Se
88 Sr 2 115	763.200 ppb	0.00	0.98	500.00	OUTCAL	Sr
95 Mo 2 115	1.301 ppb	0.00	4.08	500.00	ND	Mo
107 Ag 2 115	0.009 ppb	0.00	18.56	500.00	ND	Ag
111 Cd 2 115	-0.017 ppb	0.00	71.86	2000.00	ND	Cd
118 Sn 2 115	0.115 ppb	0.00	10.18	500.00	ND	Sn
121 Sb 2 115	1.398 ppb	0.00	0.65	500.00	J	Sb
137 Ba 2 115	108.200 ppb	0.00	1.55	2000.00	>RL	Ba
205 Tl 2 209	0.071 ppb	0.00	8.03	500.00	ND	Tl
208 Pb 2 209	0.015 ppb	0.00	1.43	2000.00	ND	Pb

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li 2	460531.97	2.42		502320.09	91.7	60 -	120	
45 Sc 1	21522.23	0.57		21794.10	98.8	60 -	120	
45 Sc 2	607706.63	3.37		614766.56	98.9	60 -	120	
72 Ge 1	14291.35	0.87		14399.89	99.2	60 -	120	
115 In 2	751825.44	3.33		778296.38	96.6	60 -	120	
209 Bi 2	543579.81	2.99		567156.00	95.8	60 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\033SMPL.D\033SMPL.D#

Date Acquired:	Jul 18 2012 02:08 pm	Sample Name:	1207088-07A
Acq. Method:	DHL_2.m	Misc Info:	SAMP6020A_W
Operator:	AR	Bench Diln:	1.00
Last Cal. Update:	Jul 18 2012 11:44 am		
Instrument:	ICPMS2		

QC Elements

Element		Conc.	Corr. Con	RSD(%)	High Limit	Flag	
7 Li	2 45	12.290 ppb	0.00	1.12	500.00	>RL	Li
9 Be	2 45	-0.031 ppb	0.00	7.51	2000.00	ND	Be
11 B	2 45	230.900 ppb	0.00	0.17	500.00	>RL	B
23 Na	1 45	79310.000 ppb	0.00	0.30	25000.00	OUTCAL	Na
24 Mg	1 45	14650.000 ppb	0.00	0.78	25000.00	>RL	Mg
27 Al	1 45	10.710 ppb	0.00	1.63	10000.00	J	Al
39 K	1 45	5297.000 ppb	0.00	1.03	25000.00	>RL	K
44 Ca	2 45	160000.000 ppb	0.00	0.32	25000.00	OUTCAL	Ca
47 Ti	1 45	0.174 ppb	0.00	15.75	500.00	ND	Ti
51 V	1 45	4.303 ppb	0.00	1.79	2000.00	J	V
52 Cr	1 45	0.118 ppb	0.00	7.42	2000.00	ND	Cr
55 Mn	1 45	13.950 ppb	0.00	1.73	2000.00	>RL	Mn
56 Fe	1 72	19.820 ppb	0.00	2.14	10000.00	ND	Fe
59 Co	1 72	0.550 ppb	0.00	7.44	2000.00	ND	Co
60 Ni	1 72	0.591 ppb	0.00	1.57	2000.00	ND	Ni
63 Cu	1 72	0.439 ppb	0.00	3.79	2000.00	ND	Cu
66 Zn	1 72	23.950 ppb	0.00	1.53	2000.00	>RL	Zn
75 As	1 72	2.147 ppb	0.00	1.82	2000.00	J	As
78 Se	1 72	42.700 ppb	0.00	1.12	2000.00	>RL	Se
88 Sr	2 115	638.700 ppb	0.00	0.43	500.00	OUTCAL	Sr
95 Mo	2 115	1.322 ppb	0.00	6.43	500.00	ND	Mo
107 Ag	2 115	0.010 ppb	0.00	14.86	500.00	ND	Ag
111 Cd	2 115	0.006 ppb	0.00	43.57	2000.00	ND	Cd
118 Sn	2 115	0.150 ppb	0.00	4.61	500.00	ND	Sn
121 Sb	2 115	3.519 ppb	0.00	0.71	500.00	>RL	Sb
137 Ba	2 115	72.070 ppb	0.00	0.95	2000.00	>RL	Ba
205 Tl	2 209	0.045 ppb	0.00	10.16	500.00	ND	Tl
208 Pb	2 209	0.024 ppb	0.00	4.18	2000.00	ND	Pb

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	462331.34	1.58		502320.09	92.0	60 -	120	
45 Sc	1		20722.65	1.02	21794.10	95.1	60 -	120	
45 Sc	2		608831.31	1.25	614766.56	99.0	60 -	120	
72 Ge	1		13914.83	0.54	14399.89	96.6	60 -	120	
115 In	2		750998.56	1.12	778296.38	96.5	60 -	120	
209 Bi	2		547663.13	1.34	567156.00	96.6	60 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\034SMPL.D\034SMPL.D#

Date Acquired: Jul 18 2012 02:14 pm Sample Name: **1207088-08A**
 Acq. Method: DHL_2.m Misc Info: SAMP6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:44 am
 Instrument: ICPMS2

QC Elements

Element	Conc.	Corr.	Con	RSD (%)	High Limit	Flag	
7 Li 2 45	15.000 ppb		0.00	0.51	500.00	>RL	Li
9 Be 2 45	-0.016 ppb		0.00	28.92	2000.00	ND	Be
11 B 2 45	248.200 ppb		0.00	0.61	500.00	>RL	B
23 Na 1 45	66680.000 ppb		0.00	0.55	25000.00	OUTCAL	Na
24 Mg 1 45	16310.000 ppb		0.00	0.44	25000.00	>RL	Mg
27 Al 1 45	113.200 ppb		0.00	3.09	10000.00	>RL	Al
39 K 1 45	5584.000 ppb		0.00	1.09	25000.00	>RL	K
44 Ca 2 45	281200.000 ppb		0.00	0.28	25000.00	OUTCAL	Ca
47 Ti 1 45	1.464 ppb		0.00	29.25	500.00	ND	Ti
51 V 1 45	5.643 ppb		0.00	1.76	2000.00	J	V
52 Cr 1 45	0.185 ppb		0.00	6.58	2000.00	ND	Cr
55 Mn 1 45	23.410 ppb		0.00	0.74	2000.00	>RL	Mn
56 Fe 1 72	97.910 ppb		0.00	1.20	10000.00	J	Fe
59 Co 1 72	0.210 ppb		0.00	8.87	2000.00	ND	Co
60 Ni 1 72	0.621 ppb		0.00	16.03	2000.00	ND	Ni
63 Cu 1 72	0.554 ppb		0.00	4.31	2000.00	ND	Cu
66 Zn 1 72	8.267 ppb		0.00	2.37	2000.00	>RL	Zn
75 As 1 72	1.442 ppb		0.00	3.94	2000.00	ND	As
78 Se 1 72	345.800 ppb		0.00	1.28	2000.00	>RL	Se
88 Sr 2 115	753.200 ppb		0.00	0.25	500.00	OUTCAL	Sr
95 Mo 2 115	24.010 ppb		0.00	2.16	500.00	>RL	Mo
107 Ag 2 115	0.016 ppb		0.00	25.46	500.00	ND	Ag
111 Cd 2 115	0.006 ppb		0.00	42.84	2000.00	ND	Cd
118 Sn 2 115	0.128 ppb		0.00	10.53	500.00	ND	Sn
121 Sb 2 115	71.740 ppb		0.00	0.80	500.00	>RL	Sb
137 Ba 2 115	40.220 ppb		0.00	1.21	2000.00	>RL	Ba
205 Tl 2 209	0.031 ppb		0.00	5.49	500.00	ND	Tl
208 Pb 2 209	0.480 ppb		0.00	2.21	2000.00	J	Pb

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li 2	460058.00	1.02		502320.09	91.6	60 -	120	
45 Sc 1	22312.74	0.14		21794.10	102.4	60 -	120	
45 Sc 2	614343.63	0.96		614766.56	99.9	60 -	120	
72 Ge 1	14939.00	1.45		14399.89	103.7	60 -	120	
115 In 2	759369.44	1.91		778296.38	97.6	60 -	120	
209 Bi 2	541830.69	0.47		567156.00	95.5	60 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\035SMPL.D\035SMPL.D#

Date Acquired: Jul 18 2012 02:20 pm Sample Name: **1207088-09A**
 Acq. Method: DHL_2.m Misc Info: SAMP6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:44 am
 Instrument: ICPMS2

QC Elements

Element	Conc.	Corr.	Con	RSD(%)	High Limit	Flag	
7 Li 2 45	23.690 ppb		0.00	0.77	500.00	>RL	Li
9 Be 2 45	-0.011 ppb		0.00	33.26	2000.00	ND	Be
11 B 2 45	199.100 ppb		0.00	0.59	500.00	>RL	B
23 Na 1 45	49400.000 ppb		0.00	0.78	25000.00	OUTCAL	Na
24 Mg 1 45	12910.000 ppb		0.00	0.22	25000.00	>RL	Mg
27 Al 1 45	117.000 ppb		0.00	4.83	10000.00	>RL	Al
39 K 1 45	4610.000 ppb		0.00	1.19	25000.00	>RL	K
44 Ca 2 45	235600.000 ppb		0.00	0.50	25000.00	OUTCAL	Ca
47 Ti 1 45	1.705 ppb		0.00	12.48	500.00	ND	Ti
51 V 1 45	3.943 ppb		0.00	1.30	2000.00	J	V
52 Cr 1 45	0.487 ppb		0.00	4.73	2000.00	ND	Cr
55 Mn 1 45	42.910 ppb		0.00	0.50	2000.00	>RL	Mn
56 Fe 1 72	254.000 ppb		0.00	1.76	10000.00	>RL	Fe
59 Co 1 72	1.113 ppb		0.00	2.34	2000.00	ND	Co
60 Ni 1 72	2.805 ppb		0.00	3.94	2000.00	ND	Ni
63 Cu 1 72	2.003 ppb		0.00	1.05	2000.00	J	Cu
66 Zn 1 72	32.980 ppb		0.00	0.89	2000.00	>RL	Zn
75 As 1 72	68.910 ppb		0.00	0.59	2000.00	>RL	As
78 Se 1 72	57.730 ppb		0.00	1.02	2000.00	>RL	Se
88 Sr 2 115	1116.000 ppb		0.00	0.88	500.00	OUTCAL	Sr
95 Mo 2 115	20.420 ppb		0.00	0.80	500.00	>RL	Mo
107 Ag 2 115	0.016 ppb		0.00	2.63	500.00	ND	Ag
111 Cd 2 115	0.165 ppb		0.00	4.53	2000.00	ND	Cd
118 Sn 2 115	0.593 ppb		0.00	1.09	500.00	ND	Sn
121 Sb 2 115	29.860 ppb		0.00	0.92	500.00	>RL	Sb
137 Ba 2 115	18.250 ppb		0.00	1.57	2000.00	>RL	Ba
205 Tl 2 209	0.028 ppb		0.00	12.47	500.00	ND	Tl
208 Pb 2 209	0.735 ppb		0.00	0.94	2000.00	J	Pb

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li 2	455110.03	1.54		502320.09	90.6	60 -	120	
45 Sc 1	22796.89	0.93		21794.10	104.6	60 -	120	
45 Sc 2	611473.63	1.07		614766.56	99.5	60 -	120	
72 Ge 1	14841.59	1.88		14399.89	103.1	60 -	120	
115 In 2	765356.94	0.17		778296.38	98.3	60 -	120	
209 Bi 2	547308.88	1.27		567156.00	96.5	60 -	120	

PDS QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\036_PDS.D\036_PDS.D#

Date Acquired: Jul 18 2012 02:26 pm Sample Name: **1207123-01E PDS**
 Acq. Method: DHL_2.m Misc Info: PDS 6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:44 am Auto Diln: Undiluted
 Instrument: ICPMS2 Total Diln: 1.00

QC Elements

Element	Conc.	RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7 Li	2 45	242.10 ppb	0.99 447564.25	200	75-125	#####	Fail
9 Be	2 45	182.60 ppb	1.08 0.90	200	75-125	90.9	
11 B	2 45	232.70 ppb	2.81 40.95	200	75-125	95.9	
23 Na	1 45	9978.00 ppb	0.63 4742.00	5000	75-125	104.7	
24 Mg	1 45	7060.00 ppb	1.73 1906.00	5000	75-125	103.1	
27 Al	1 45	5408.00 ppb	1.19 496.80	5000	75-125	98.2	
39 K	1 45	6800.00 ppb	0.62 1617.00	5000	75-125	103.7	
44 Ca	2 45	6824.00 ppb	1.96 1967.00	5000	75-125	97.1	
47 Ti	1 45	209.40 ppb	0.71 0.20	200	75-125	104.6	
51 V	1 45	199.00 ppb	1.89 0.09	200	75-125	99.5	
52 Cr	1 45	208.50 ppb	1.05 0.22	200	75-125	104.1	
55 Mn	1 45	284.50 ppb	0.02 79.78	200	75-125	102.4	
56 Fe	1 72	5009.00 ppb	0.98 15.80	5000	75-125	99.9	
59 Co	1 72	217.60 ppb	0.86 13.12	200	75-125	102.2	
60 Ni	1 72	220.70 ppb	0.91 14.25	200	75-125	103.2	
63 Cu	1 72	202.30 ppb	0.52 0.55	200	75-125	100.9	
66 Zn	1 72	295.40 ppb	2.41 98.26	200	75-125	98.6	
75 As	1 72	193.80 ppb	1.01 0.12	200	75-125	96.8	
78 Se	1 72	197.90 ppb	0.36 0.39	200	75-125	98.8	
88 Sr	2 115	240.30 ppb	1.84 40.16	200	75-125	100.1	
95 Mo	2 115	196.70 ppb	2.61 0.56	200	75-125	98.1	
107 Ag	2 115	193.60 ppb	1.91 0.03	200	75-125	96.8	
111 Cd	2 115	194.30 ppb	2.49 0.15	200	75-125	97.1	
118 Sn	2 115	208.40 ppb	2.03 0.18	200	75-125	104.1	
121 Sb	2 115	170.40 ppb	1.17 -0.04	200	75-125	85.2	
137 Ba	2 115	306.00 ppb	2.16 119.00	200	75-125	93.5	
205 Tl	2 209	196.60 ppb	4.39 0.28	200	75-125	98.2	
208 Pb	2 209	191.90 ppb	2.34 0.33	200	75-125	95.8	

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	447564.25	1.42	502320.09	89.1	60 -	120	
45 Sc	1	22892.12	0.90	21794.10	105.0	60 -	120	
45 Sc	2	634283.94	1.21	614766.56	103.2	60 -	120	
72 Ge	1	15220.34	0.51	14399.89	105.7	60 -	120	
115 In	2	791517.25	1.61	778296.38	101.7	60 -	120	
209 Bi	2	580663.56	2.66	567156.00	102.4	60 -	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\037_MS.D\037_MS.D#

Date Acquired: Jul 18 2012 02:32 pm Sample Name: **1207123-01E MS**
 Acq. Method: DHL_2.m Misc Info: MS 6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:44 am Auto Diln: Undiluted
 Instrument: ICPMS2 Total Diln: 1.00

QC Elements

Element	Conc.	RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7 Li 2 45	245.30 ppb	0.74 #####	200	80-120	#####	Fail	
9 Be 2 45	178.90 ppb	1.32 0.90	200	80-120	89.0		
11 B 2 45	229.10 ppb	2.39 40.95	200	80-120	94.1		
23 Na 1 45	9724.00 ppb	0.34 4742.00	5000	80-120	99.6		
24 Mg 1 45	6729.00 ppb	0.42 1906.00	5000	80-120	96.5		
27 Al 1 45	5283.00 ppb	0.70 496.80	5000	80-120	95.7		
39 K 1 45	6546.00 ppb	0.40 1617.00	5000	80-120	98.6		
44 Ca 2 45	6643.00 ppb	1.09 1967.00	5000	80-120	93.5		
47 Ti 1 45	197.10 ppb	2.31 0.20	200	80-120	98.5		
51 V 1 45	195.30 ppb	0.77 0.09	200	80-120	97.6		
52 Cr 1 45	199.70 ppb	1.31 0.22	200	80-120	99.7		
55 Mn 1 45	282.80 ppb	0.89 79.78	200	80-120	101.5		
56 Fe 1 72	5030.00 ppb	1.25 15.80	5000	80-120	100.3		
59 Co 1 72	210.80 ppb	0.45 13.12	200	80-120	98.8		
60 Ni 1 72	214.70 ppb	1.69 14.25	200	80-120	100.2		
63 Cu 1 72	200.20 ppb	0.85 0.55	200	80-120	99.8		
66 Zn 1 72	297.80 ppb	1.52 98.26	200	80-120	99.8		
75 As 1 72	196.30 ppb	0.44 0.12	200	80-120	98.1		
78 Se 1 72	198.60 ppb	0.07 0.39	200	80-120	99.1		
88 Sr 2 115	240.50 ppb	1.71 40.16	200	80-120	100.2		
95 Mo 2 115	195.60 ppb	1.37 0.56	200	80-120	97.5		
107 Ag 2 115	193.70 ppb	0.75 0.03	200	80-120	96.8		
111 Cd 2 115	193.10 ppb	0.86 0.15	200	80-120	96.5		
118 Sn 2 115	200.20 ppb	0.90 0.18	200	80-120	100.0		
121 Sb 2 115	190.50 ppb	0.48 -0.04	200	80-120	95.3		
137 Ba 2 115	306.70 ppb	2.00 119.00	200	80-120	93.9		
205 Tl 2 209	191.00 ppb	2.07 0.28	200	80-120	95.4		
208 Pb 2 209	189.40 ppb	0.52 0.33	200	80-120	94.5		

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li 2	410917.38	1.56	502320.09	81.8	60 -	120		
45 Sc 1	22732.14	0.67	21794.10	104.3	60 -	120		
45 Sc 2	628370.31	1.15	614766.56	102.2	60 -	120		
72 Ge 1	14946.10	0.24	14399.89	103.8	60 -	120		
115 In 2	772996.00	1.08	778296.38	99.3	60 -	120		
209 Bi 2	572015.19	0.91	567156.00	100.9	60 -	120		

MS/MSD QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\038_MS.D\038_MS.D#

Date Acquired: Jul 18 2012 02:38 pm Sample Name: **1207123-01E MSD**
 Acq. Method: DHL_2.m Misc Info: MSD 6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:44 am Auto Diln: Undiluted
 Instrument: ICPMS2 Total Diln: 1.00

QC Elements

Element	Conc.	RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7 Li 2 45	248.70 ppb	2.02	#####	200	80-120	#####	Fail
9 Be 2 45	183.80 ppb	1.00	0.90	200	80-120	91.5	
11 B 2 45	236.10 ppb	0.63	40.95	200	80-120	97.6	
23 Na 1 45	10070.00 ppb	0.63	4742.00	5000	80-120	106.6	
24 Mg 1 45	6947.00 ppb	0.07	1906.00	5000	80-120	100.8	
27 Al 1 45	5386.00 ppb	0.62	496.80	5000	80-120	97.8	
39 K 1 45	6782.00 ppb	1.63	1617.00	5000	80-120	103.3	
44 Ca 2 45	6895.00 ppb	1.45	1967.00	5000	80-120	98.6	
47 Ti 1 45	202.50 ppb	2.03	0.20	200	80-120	101.2	
51 V 1 45	202.00 ppb	0.80	0.09	200	80-120	101.0	
52 Cr 1 45	204.80 ppb	0.45	0.22	200	80-120	102.3	
55 Mn 1 45	289.00 ppb	0.51	79.78	200	80-120	104.6	
56 Fe 1 72	4999.00 ppb	0.61	15.80	5000	80-120	99.7	
59 Co 1 72	213.90 ppb	0.73	13.12	200	80-120	100.4	
60 Ni 1 72	217.50 ppb	0.20	14.25	200	80-120	101.6	
63 Cu 1 72	201.20 ppb	0.56	0.55	200	80-120	100.3	
66 Zn 1 72	299.10 ppb	0.23	98.26	200	80-120	100.4	
75 As 1 72	197.90 ppb	0.21	0.12	200	80-120	98.9	
78 Se 1 72	197.70 ppb	0.45	0.39	200	80-120	98.7	
88 Sr 2 115	245.00 ppb	0.27	40.16	200	80-120	102.4	
95 Mo 2 115	200.40 ppb	0.61	0.56	200	80-120	99.9	
107 Ag 2 115	195.60 ppb	0.74	0.03	200	80-120	97.8	
111 Cd 2 115	197.70 ppb	1.18	0.15	200	80-120	98.8	
118 Sn 2 115	205.00 ppb	0.72	0.18	200	80-120	102.4	
121 Sb 2 115	193.00 ppb	0.99	-0.04	200	80-120	96.5	
137 Ba 2 115	314.20 ppb	0.77	119.00	200	80-120	97.6	
205 Tl 2 209	203.00 ppb	0.65	0.28	200	80-120	101.4	
208 Pb 2 209	195.80 ppb	0.06	0.33	200	80-120	97.7	

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li 2	415552.66	0.54		502320.09	82.7	60 -	120	
45 Sc 1	22690.08	0.49		21794.10	104.1	60 -	120	
45 Sc 2	633881.88	0.30		614766.56	103.1	60 -	120	
72 Ge 1	15262.81	0.48		14399.89	106.0	60 -	120	
115 In 2	789485.06	1.74		778296.38	101.4	60 -	120	
209 Bi 2	577019.25	0.32		567156.00	101.7	60 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\039CCV1.D\039CCV1.D#

Date Acquired: Jul 18 2012 02:44 pm Sample Name:
 Acq. Method: DHL_2.m Misc Info:
 Operator: AR Diln Factor:
 Last Cal. Update: Jul 18 2012 11:44 am
 Instrument: ICPMS2

CCV1-120718
 CCV ICPMS_TW

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2	45	196.70 ppb	0.39	200.00	90 -	110 98.4
9 Be	2	45	192.00 ppb	0.58	200.00	90 -	110 96.0
11 B	2	45	205.80 ppb	0.82	200.00	90 -	110 102.9
23 Na	1	45	5255.00 ppb	0.27	5000.00	90 -	110 105.1
24 Mg	1	45	5212.00 ppb	0.56	5000.00	90 -	110 104.2
27 Al	1	45	5190.00 ppb	0.78	5000.00	90 -	110 103.8
39 K	1	45	5210.00 ppb	1.04	5000.00	90 -	110 104.2
44 Ca	2	45	5213.00 ppb	1.68	5000.00	90 -	110 104.3
47 Ti	1	45	206.50 ppb	1.67	200.00	90 -	110 103.3
51 V	1	45	204.80 ppb	1.05	200.00	90 -	110 102.4
52 Cr	1	45	210.10 ppb	0.67	200.00	90 -	110 105.1
55 Mn	1	45	210.40 ppb	0.42	200.00	90 -	110 105.2
56 Fe	1	72	5279.00 ppb	1.14	5000.00	90 -	110 105.6
59 Co	1	72	206.90 ppb	0.40	200.00	90 -	110 103.5
60 Ni	1	72	211.40 ppb	0.99	200.00	90 -	110 105.7
63 Cu	1	72	208.20 ppb	0.51	200.00	90 -	110 104.1
66 Zn	1	72	209.90 ppb	0.15	200.00	90 -	110 105.0
75 As	1	72	205.30 ppb	0.21	200.00	90 -	110 102.7
78 Se	1	72	205.20 ppb	1.13	200.00	90 -	110 102.6
88 Sr	2	115	199.70 ppb	1.28	200.00	90 -	110 99.9
95 Mo	2	115	202.60 ppb	0.76	200.00	90 -	110 101.3
107 Ag	2	115	203.00 ppb	0.38	200.00	90 -	110 101.5
111 Cd	2	115	200.10 ppb	2.00	200.00	90 -	110 100.1
118 Sn	2	115	196.40 ppb	1.02	200.00	90 -	110 98.2
121 Sb	2	115	196.00 ppb	1.10	200.00	90 -	110 98.0
137 Ba	2	115	191.50 ppb	2.41	200.00	90 -	110 95.8
205 Tl	2	209	197.80 ppb	2.55	200.00	90 -	110 98.9
208 Pb	2	209	196.20 ppb	1.06	200.00	90 -	110 98.1

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	423854.09	0.78	502320.09		84.4	60 -	120	
45 Sc	1	22220.62	0.97	21794.10		102.0	60 -	120	
45 Sc	2	619695.13	0.87	614766.56		100.8	60 -	120	
72 Ge	1	14709.92	0.89	14399.89		102.2	60 -	120	
115 In	2	794850.38	0.80	778296.38		102.1	60 -	120	
209 Bi	2	583253.38	0.87	567156.00		102.8	60 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\043LCVL.D\043LCVL.D#

Date Acquired: Jul 18 2012 03:07 pm Sample Name: **LCVL1-120718**
 Acq. Method: DHL_2.m Misc Info: LCVL6020A_W
 Operator: AR Diln Factor: 1.00
 Last Cal. Update: Jul 18 2012 11:44 am
 Instrument: ICPMS2

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2	45	4.73 ppb	2.12	5.00	70 -	130 94.5
9 Be	2	45	0.98 ppb	2.55	1.00	70 -	130 98.1
11 B	2	45	28.02 ppb	2.40	5.00	70 -	130 560.4 Fail
23 Na	1	45	112.00 ppb	1.53	100.00	70 -	130 112.0
24 Mg	1	45	108.30 ppb	2.67	100.00	70 -	130 108.3
27 Al	1	45	101.90 ppb	0.81	100.00	70 -	130 101.9
39 K	1	45	105.60 ppb	1.58	100.00	70 -	130 105.6
44 Ca	2	45	116.60 ppb	1.12	100.00	70 -	130 116.6
47 Ti	1	45	5.34 ppb	18.16	5.00	70 -	130 106.7
51 V	1	45	1.01 ppb	3.07	1.00	70 -	130 101.0
52 Cr	1	45	5.14 ppb	2.57	5.00	70 -	130 102.7
55 Mn	1	45	5.04 ppb	3.86	5.00	70 -	130 100.8
56 Fe	1	72	121.90 ppb	0.34	100.00	70 -	130 121.9
59 Co	1	72	5.21 ppb	3.17	5.00	70 -	130 104.2
60 Ni	1	72	5.22 ppb	3.30	5.00	70 -	130 104.4
63 Cu	1	72	5.12 ppb	1.35	5.00	70 -	130 102.4
66 Zn	1	72	5.54 ppb	3.91	5.00	70 -	130 110.8
75 As	1	72	5.16 ppb	0.40	5.00	70 -	130 103.1
78 Se	1	72	5.31 ppb	2.51	5.00	70 -	130 106.2
88 Sr	2	115	5.01 ppb	1.36	5.00	70 -	130 100.3
95 Mo	2	115	5.49 ppb	4.42	5.00	70 -	130 109.8
107 Ag	2	115	1.98 ppb	2.49	2.00	70 -	130 99.2
111 Cd	2	115	0.99 ppb	5.20	1.00	70 -	130 98.6
118 Sn	2	115	5.02 ppb	1.72	5.00	70 -	130 100.4
121 Sb	2	115	2.45 ppb	1.58	2.00	70 -	130 122.3
137 Ba	2	115	4.70 ppb	1.61	5.00	70 -	130 94.0
205 Tl	2	209	1.35 ppb	0.41	1.00	70 -	130 135.0 Fail
208 Pb	2	209	0.95 ppb	2.43	1.00	70 -	130 94.9

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	474509.00	1.52	502320.09		94.5	60 -	120	
45 Sc	1	22693.85	0.58	21794.10		104.1	60 -	120	
45 Sc	2	617711.19	0.99	614766.56		100.5	60 -	120	
72 Ge	1	14707.69	1.10	14399.89		102.1	60 -	120	
115 In	2	794528.19	1.25	778296.38		102.1	60 -	120	
209 Bi	2	579100.25	0.29	567156.00		102.1	60 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\045_CCB.D\045_CCB.D#

Date Acquired:	Jul 18 2012 03:24 pm	Sample Name:	CCB1-120718
Acq. Method:	DHL_2.m	Misc Info:	CCB ICPMS_TW
Operator:	AR	Diln Factor:	1.00
Last Cal. Update:	Jul 18 2012 11:44 am		
Instrument:	ICPMS2		

QC Elements

Element		Conc.	RSD(%)	MDL S	MDL Aq	Flag
7 Li	2 45	-0.120 ppb	0.81	2.00	2.00	
9 Be	2 45	-0.025 ppb	7.53	0.10	0.30	
11 B	2 45	6.689 ppb	3.98	10.00	10.00	
23 Na	1 45	8.117 ppb	2.49	50.00	#####	
24 Mg	1 45	2.231 ppb	5.88	50.00	#####	
27 Al	1 45	-0.009 ppb	4.57	50.00	10.00	
39 K	1 45	2.169 ppb	2.43	50.00	#####	
44 Ca	2 45	11.800 ppb	4.99	50.00	#####	
47 Ti	1 45	0.092 ppb	21.65	4.00	3.00	
51 V	1 45	0.057 ppb	25.98	4.00	3.00	
52 Cr	1 45	-0.018 ppb	16.33	2.00	2.00	
55 Mn	1 45	0.043 ppb	12.06	2.00	3.00	
56 Fe	1 72	1.254 ppb	2.35	50.00	50.00	
59 Co	1 72	0.017 ppb	19.62	2.00	3.00	
60 Ni	1 72	-0.018 ppb	10.09	2.00	3.00	
63 Cu	1 72	-0.100 ppb	4.29	2.00	2.00	
66 Zn	1 72	-0.160 ppb	6.80	4.00	2.00	
75 As	1 72	0.015 ppb	6.22	2.00	2.00	
78 Se	1 72	0.228 ppb	7.40	0.60	2.00	
88 Sr	2 115	0.095 ppb	3.91	4.00	3.00	
95 Mo	2 115	0.126 ppb	7.21	2.00	2.00	
107 Ag	2 115	0.023 ppb	13.49	0.40	1.00	
111 Cd	2 115	0.009 ppb	50.90	0.40	0.30	
118 Sn	2 115	0.027 ppb	5.22	4.00	3.00	
121 Sb	2 115	0.118 ppb	2.81	2.00	0.80	
137 Ba	2 115	0.013 ppb	2.70	2.00	3.00	
205 Tl	2 209	0.102 ppb	7.86	2.00	0.50	
208 Pb	2 209	-0.026 ppb	1.81	0.40	0.30	

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	479175.00	0.62	502320.09	95.4	60 -	120		
45 Sc	1	23160.90	0.56	21794.10	106.3	60 -	120		
45 Sc	2	613072.25	1.21	614766.56	99.7	60 -	120		
72 Ge	1	15071.11	0.56	14399.89	104.7	60 -	120		
115 In	2	783733.31	1.20	778296.38	100.7	60 -	120		
209 Bi	2	571643.06	1.61	567156.00	100.8	60 -	120		

Sample QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\046SMPL.D\046SMPL.D#

Date Acquired: Jul 18 2012 03:30 pm Sample Name: **1207088-10A**
 Acq. Method: DHL_2.m Misc Info: SAMP6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:44 am
 Instrument: ICPMS2

QC Elements

Element	Conc.	Corr. Con	RSD(%)	High Limit	Flag	
7 Li 2 45	20.880 ppb	0.00	1.20	500.00	>RL	Li
9 Be 2 45	0.034 ppb	0.00	18.43	2000.00	ND	Be
11 B 2 45	396.300 ppb	0.00	0.28	500.00	>RL	B
23 Na 1 45	30750.000 ppb	0.00	0.49	25000.00	OUTCAL	Na
24 Mg 1 45	6849.000 ppb	0.00	0.56	25000.00	>RL	Mg
27 Al 1 45	140.600 ppb	0.00	2.50	10000.00	>RL	Al
39 K 1 45	7871.000 ppb	0.00	0.65	25000.00	>RL	K
44 Ca 2 45	168500.000 ppb	0.00	0.42	25000.00	OUTCAL	Ca
47 Ti 1 45	2.371 ppb	0.00	53.83	500.00	ND	Ti
51 V 1 45	2.889 ppb	0.00	1.16	2000.00	ND	V
52 Cr 1 45	0.408 ppb	0.00	4.23	2000.00	ND	Cr
55 Mn 1 45	257.200 ppb	0.00	0.51	2000.00	>RL	Mn
56 Fe 1 72	1632.000 ppb	0.00	0.73	10000.00	>RL	Fe
59 Co 1 72	2.308 ppb	0.00	2.20	2000.00	ND	Co
60 Ni 1 72	3.728 ppb	0.00	1.19	2000.00	J	Ni
63 Cu 1 72	2.572 ppb	0.00	0.93	2000.00	J	Cu
66 Zn 1 72	10.260 ppb	0.00	4.56	2000.00	>RL	Zn
75 As 1 72	5.032 ppb	0.00	1.06	2000.00	>RL	As
78 Se 1 72	0.817 ppb	0.00	3.96	2000.00	ND	Se
88 Sr 2 115	579.500 ppb	0.00	0.94	500.00	OUTCAL	Sr
95 Mo 2 115	2.051 ppb	0.00	3.67	500.00	J	Mo
107 Ag 2 115	0.029 ppb	0.00	10.71	500.00	ND	Ag
111 Cd 2 115	0.140 ppb	0.00	21.81	2000.00	ND	Cd
118 Sn 2 115	0.113 ppb	0.00	5.28	500.00	ND	Sn
121 Sb 2 115	28.340 ppb	0.00	1.09	500.00	>RL	Sb
137 Ba 2 115	86.040 ppb	0.00	2.29	2000.00	>RL	Ba
205 Tl 2 209	0.122 ppb	0.00	5.66	500.00	ND	Tl
208 Pb 2 209	2.309 ppb	0.00	1.43	2000.00	>RL	Pb

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li 2	451548.69	1.24		502320.09	89.9	60 -	120	
45 Sc 1	22979.33	1.88		21794.10	105.4	60 -	120	
45 Sc 2	601787.19	0.66		614766.56	97.9	60 -	120	
72 Ge 1	15010.38	1.01		14399.89	104.2	60 -	120	
115 In 2	755810.63	0.43		778296.38	97.1	60 -	120	
209 Bi 2	531807.63	1.45		567156.00	93.8	60 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\047SMPL.D\047SMPL.D#

Date Acquired: Jul 18 2012 03:36 pm Sample Name: **1207088-11A**
 Acq. Method: DHL_2.m Misc Info: SAMP6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:44 am
 Instrument: ICPMS2

QC Elements

Element	Conc.	Corr.	Con	RSD(%)	High Limit	Flag	
7 Li 2 45	10.780 ppb		0.00	1.36	500.00	>RL	Li
9 Be 2 45	0.249 ppb		0.00	5.59	2000.00	ND	Be
11 B 2 45	240.500 ppb		0.00	0.39	500.00	>RL	B
23 Na 1 45	30680.000 ppb		0.00	1.11	25000.00	OUTCAL	Na
24 Mg 1 45	9138.000 ppb		0.00	0.64	25000.00	>RL	Mg
27 Al 1 45	883.600 ppb		0.00	0.55	10000.00	>RL	Al
39 K 1 45	1363.000 ppb		0.00	1.23	25000.00	>RL	K
44 Ca 2 45	599600.000 ppb		0.00	1.12	25000.00	OUTCAL	Ca
47 Ti 1 45	4.091 ppb		0.00	6.23	500.00	J	Ti
51 V 1 45	12.580 ppb		0.00	2.22	2000.00	>RL	V
52 Cr 1 45	2.740 ppb		0.00	3.03	2000.00	J	Cr
55 Mn 1 45	693.700 ppb		0.00	0.69	2000.00	>RL	Mn
56 Fe 1 72	1696.000 ppb		0.00	0.16	10000.00	>RL	Fe
59 Co 1 72	7.229 ppb		0.00	0.86	2000.00	J	Co
60 Ni 1 72	5.059 ppb		0.00	1.84	2000.00	J	Ni
63 Cu 1 72	10.480 ppb		0.00	0.64	2000.00	>RL	Cu
66 Zn 1 72	26.080 ppb		0.00	1.44	2000.00	>RL	Zn
75 As 1 72	2.692 ppb		0.00	2.36	2000.00	J	As
78 Se 1 72	25.710 ppb		0.00	2.59	2000.00	>RL	Se
88 Sr 2 115	1129.000 ppb		0.00	0.89	500.00	OUTCAL	Sr
95 Mo 2 115	0.235 ppb		0.00	11.35	500.00	ND	Mo
107 Ag 2 115	0.083 ppb		0.00	8.45	500.00	ND	Ag
111 Cd 2 115	0.758 ppb		0.00	3.48	2000.00	J	Cd
118 Sn 2 115	0.284 ppb		0.00	0.75	500.00	ND	Sn
121 Sb 2 115	1.157 ppb		0.00	1.28	500.00	J	Sb
137 Ba 2 115	97.070 ppb		0.00	1.54	2000.00	>RL	Ba
205 Tl 2 209	0.104 ppb		0.00	2.36	500.00	ND	Tl
208 Pb 2 209	11.310 ppb		0.00	1.35	2000.00	>RL	Pb

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li 2	438339.06	1.83		502320.09	87.3	60 -	120	
45 Sc 1	22368.37	1.28		21794.10	102.6	60 -	120	
45 Sc 2	593565.56	1.33		614766.56	96.6	60 -	120	
72 Ge 1	14119.88	1.04		14399.89	98.1	60 -	120	
115 In 2	712153.81	1.36		778296.38	91.5	60 -	120	
209 Bi 2	487847.44	1.47		567156.00	86.0	60 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\048SMPL.D\048SMPL.D#

Date Acquired:	Jul 18 2012 03:43 pm	Sample Name:	1207088-12A
Acq. Method:	DHL_2.m	Misc Info:	SAMP6020A_W
Operator:	AR	Bench Diln:	1.00
Last Cal. Update:	Jul 18 2012 11:44 am		
Instrument:	ICPMS2		

QC Elements

Element		Conc.	Corr.	Con	RSD(%)	High Limit	Flag	
7 Li	2 45	10.310 ppb		0.00	1.05	500.00	>RL	Li
9 Be	2 45	-0.009 ppb		0.00	13.62	2000.00	ND	Be
11 B	2 45	442.800 ppb		0.00	1.92	500.00	>RL	B
23 Na	1 45	20790.000 ppb		0.00	0.78	25000.00	>RL	Na
24 Mg	1 45	8656.000 ppb		0.00	0.72	25000.00	>RL	Mg
27 Al	1 45	7.422 ppb		0.00	9.49	10000.00	ND	Al
39 K	1 45	14560.000 ppb		0.00	1.68	25000.00	>RL	K
44 Ca	2 45	150700.000 ppb		0.00	0.52	25000.00	OUTCAL	Ca
47 Ti	1 45	0.314 ppb		0.00	66.66	500.00	ND	Ti
51 V	1 45	8.019 ppb		0.00	0.38	2000.00	J	V
52 Cr	1 45	0.269 ppb		0.00	8.12	2000.00	ND	Cr
55 Mn	1 45	0.785 ppb		0.00	6.08	2000.00	ND	Mn
56 Fe	1 72	12.050 ppb		0.00	1.96	10000.00	ND	Fe
59 Co	1 72	0.310 ppb		0.00	7.32	2000.00	ND	Co
60 Ni	1 72	0.294 ppb		0.00	18.11	2000.00	ND	Ni
63 Cu	1 72	0.350 ppb		0.00	1.00	2000.00	ND	Cu
66 Zn	1 72	2.832 ppb		0.00	3.79	2000.00	J	Zn
75 As	1 72	31.220 ppb		0.00	1.37	2000.00	>RL	As
78 Se	1 72	22.550 ppb		0.00	0.81	2000.00	>RL	Se
88 Sr	2 115	405.200 ppb		0.00	0.78	500.00	>RL	Sr
95 Mo	2 115	11.300 ppb		0.00	1.67	500.00	>RL	Mo
107 Ag	2 115	0.033 ppb		0.00	31.58	500.00	ND	Ag
111 Cd	2 115	0.010 ppb		0.00	71.16	2000.00	ND	Cd
118 Sn	2 115	0.073 ppb		0.00	5.30	500.00	ND	Sn
121 Sb	2 115	159.100 ppb		0.00	1.07	500.00	>RL	Sb
137 Ba	2 115	97.310 ppb		0.00	1.24	2000.00	>RL	Ba
205 Tl	2 209	0.192 ppb		0.00	2.62	500.00	ND	Tl
208 Pb	2 209	0.004 ppb		0.00	4.06	2000.00	ND	Pb

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	456218.44	1.74		502320.09	90.8	60 -	120	
45 Sc	1		21223.00	0.40	21794.10	97.4	60 -	120	
45 Sc	2		607069.56	1.63	614766.56	98.7	60 -	120	
72 Ge	1		14211.07	0.77	14399.89	98.7	60 -	120	
115 In	2		761623.75	1.90	778296.38	97.9	60 -	120	
209 Bi	2		545726.38	2.00	567156.00	96.2	60 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\049SMPL.D\049SMPL.D#

Date Acquired:	Jul 18 2012 03:52 pm	Sample Name:	1207088-13A
Acq. Method:	DHL_2.m	Misc Info:	SAMP6020A_W
Operator:	AR	Bench Diln:	1.00
Last Cal. Update:	Jul 18 2012 11:44 am		
Instrument:	ICPMS2		

QC Elements

Element		Conc.	Corr.	Con	RSD(%)	High Limit	Flag	
7 Li	2 45	17.400 ppb		0.00	0.53	500.00	>RL	Li
9 Be	2 45	-0.005 ppb		0.00	19.93	2000.00	ND	Be
11 B	2 45	321.300 ppb		0.00	1.62	500.00	>RL	B
23 Na	1 45	41620.000 ppb		0.00	0.95	25000.00	OUTCAL	Na
24 Mg	1 45	10460.000 ppb		0.00	0.54	25000.00	>RL	Mg
27 Al	1 45	10.730 ppb		0.00	8.02	10000.00	J	Al
39 K	1 45	9277.000 ppb		0.00	0.31	25000.00	>RL	K
44 Ca	2 45	182000.000 ppb		0.00	0.17	25000.00	OUTCAL	Ca
47 Ti	1 45	0.314 ppb		0.00	32.87	500.00	ND	Ti
51 V	1 45	18.260 ppb		0.00	0.36	2000.00	>RL	V
52 Cr	1 45	0.401 ppb		0.00	3.95	2000.00	ND	Cr
55 Mn	1 45	2.411 ppb		0.00	3.78	2000.00	ND	Mn
56 Fe	1 72	83.930 ppb		0.00	0.51	10000.00	J	Fe
59 Co	1 72	0.725 ppb		0.00	1.35	2000.00	ND	Co
60 Ni	1 72	0.480 ppb		0.00	8.01	2000.00	ND	Ni
63 Cu	1 72	0.318 ppb		0.00	5.74	2000.00	ND	Cu
66 Zn	1 72	3.845 ppb		0.00	6.98	2000.00	J	Zn
75 As	1 72	391.100 ppb		0.00	0.30	2000.00	>RL	As
78 Se	1 72	107.000 ppb		0.00	0.63	2000.00	>RL	Se
88 Sr	2 115	551.100 ppb		0.00	1.46	500.00	OUTCAL	Sr
95 Mo	2 115	22.880 ppb		0.00	1.83	500.00	>RL	Mo
107 Ag	2 115	0.013 ppb		0.00	12.12	500.00	ND	Ag
111 Cd	2 115	-0.008 ppb		0.00	68.81	2000.00	ND	Cd
118 Sn	2 115	0.043 ppb		0.00	11.62	500.00	ND	Sn
121 Sb	2 115	323.200 ppb		0.00	0.69	500.00	>RL	Sb
137 Ba	2 115	56.110 ppb		0.00	1.24	2000.00	>RL	Ba
205 Tl	2 209	0.102 ppb		0.00	2.74	500.00	ND	Tl
208 Pb	2 209	0.208 ppb		0.00	5.64	2000.00	ND	Pb

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	455293.84	1.17		502320.09	90.6	60 -	120	
45 Sc	1	22446.67	0.92		21794.10	103.0	60 -	120	
45 Sc	2	599493.00	1.19		614766.56	97.5	60 -	120	
72 Ge	1	15751.24	0.86		14399.89	109.4	60 -	120	
115 In	2	746092.19	0.56		778296.38	95.9	60 -	120	
209 Bi	2	530587.94	0.67		567156.00	93.6	60 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\050SMPL.D\050SMPL.D#

Date Acquired: Jul 18 2012 03:58 pm Sample Name: **1207088-14A**
 Acq. Method: DHL_2.m Misc Info: SAMP6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:44 am
 Instrument: ICPMS2

QC Elements

Element	Conc.	Corr.	Con	RSD(%)	High Limit	Flag	
7 Li 2 45	17.150 ppb		0.00	2.01	500.00	>RL	Li
9 Be 2 45	-0.014 ppb		0.00	9.80	2000.00	ND	Be
11 B 2 45	317.600 ppb		0.00	1.38	500.00	>RL	B
23 Na 1 45	41760.000 ppb		0.00	0.22	25000.00	OUTCAL	Na
24 Mg 1 45	10480.000 ppb		0.00	0.50	25000.00	>RL	Mg
27 Al 1 45	13.430 ppb		0.00	3.90	10000.00	J	Al
39 K 1 45	9194.000 ppb		0.00	0.27	25000.00	>RL	K
44 Ca 2 45	176200.000 ppb		0.00	1.20	25000.00	OUTCAL	Ca
47 Ti 1 45	0.253 ppb		0.00	78.06	500.00	ND	Ti
51 V 1 45	17.910 ppb		0.00	0.75	2000.00	>RL	V
52 Cr 1 45	0.193 ppb		0.00	1.62	2000.00	ND	Cr
55 Mn 1 45	0.877 ppb		0.00	1.38	2000.00	ND	Mn
56 Fe 1 72	19.840 ppb		0.00	1.58	10000.00	ND	Fe
59 Co 1 72	0.256 ppb		0.00	0.55	2000.00	ND	Co
60 Ni 1 72	0.459 ppb		0.00	3.84	2000.00	ND	Ni
63 Cu 1 72	0.166 ppb		0.00	2.32	2000.00	ND	Cu
66 Zn 1 72	3.727 ppb		0.00	7.16	2000.00	J	Zn
75 As 1 72	378.300 ppb		0.00	0.38	2000.00	>RL	As
78 Se 1 72	104.400 ppb		0.00	1.58	2000.00	>RL	Se
88 Sr 2 115	545.400 ppb		0.00	1.40	500.00	OUTCAL	Sr
95 Mo 2 115	22.350 ppb		0.00	2.61	500.00	>RL	Mo
107 Ag 2 115	0.021 ppb		0.00	15.61	500.00	ND	Ag
111 Cd 2 115	-0.007 ppb		0.00	53.54	2000.00	ND	Cd
118 Sn 2 115	0.061 ppb		0.00	6.59	500.00	ND	Sn
121 Sb 2 115	318.400 ppb		0.00	1.74	500.00	>RL	Sb
137 Ba 2 115	54.790 ppb		0.00	1.69	2000.00	>RL	Ba
205 Tl 2 209	0.095 ppb		0.00	5.75	500.00	ND	Tl
208 Pb 2 209	0.015 ppb		0.00	8.57	2000.00	ND	Pb

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li 2	455088.44	2.42		502320.09	90.6	60 -	120	
45 Sc 1	22450.02	0.64		21794.10	103.0	60 -	120	
45 Sc 2	602876.38	2.71		614766.56	98.1	60 -	120	
72 Ge 1	15831.55	0.37		14399.89	109.9	60 -	120	
115 In 2	741798.81	2.17		778296.38	95.3	60 -	120	
209 Bi 2	524641.25	2.79		567156.00	92.5	60 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\051SMPL.D\051SMPL.D#

Date Acquired: Jul 18 2012 04:04 pm Sample Name: **1207088-15A**
 Acq. Method: DHL_2.m Misc Info: SAMP6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:44 am
 Instrument: ICPMS2

QC Elements

Element	Conc.	Corr. Con	RSD(%)	High Limit	Flag	
7 Li 2 45	0.095 ppb	0.00	0.84	500.00	ND	Li
9 Be 2 45	-0.018 ppb	0.00	6.03	2000.00	ND	Be
11 B 2 45	33.980 ppb	0.00	1.12	500.00	>RL	B
23 Na 1 45	111.100 ppb	0.00	0.93	25000.00	>RL	Na
24 Mg 1 45	23.090 ppb	0.00	1.76	25000.00	ND	Mg
27 Al 1 45	16.450 ppb	0.00	5.95	10000.00	J	Al
39 K 1 45	34.130 ppb	0.00	2.92	25000.00	ND	K
44 Ca 2 45	731.500 ppb	0.00	1.31	25000.00	>RL	Ca
47 Ti 1 45	0.315 ppb	0.00	32.87	500.00	ND	Ti
51 V 1 45	0.059 ppb	0.00	7.37	2000.00	ND	V
52 Cr 1 45	0.031 ppb	0.00	4.97	2000.00	ND	Cr
55 Mn 1 45	0.624 ppb	0.00	3.46	2000.00	ND	Mn
56 Fe 1 72	10.360 ppb	0.00	0.79	10000.00	ND	Fe
59 Co 1 72	0.054 ppb	0.00	15.57	2000.00	ND	Co
60 Ni 1 72	0.162 ppb	0.00	3.73	2000.00	ND	Ni
63 Cu 1 72	0.816 ppb	0.00	3.80	2000.00	ND	Cu
66 Zn 1 72	59.230 ppb	0.00	0.42	2000.00	>RL	Zn
75 As 1 72	0.194 ppb	0.00	3.88	2000.00	ND	As
78 Se 1 72	0.217 ppb	0.00	6.50	2000.00	ND	Se
88 Sr 2 115	0.664 ppb	0.00	2.11	500.00	ND	Sr
95 Mo 2 115	0.239 ppb	0.00	7.07	500.00	ND	Mo
107 Ag 2 115	0.016 ppb	0.00	13.38	500.00	ND	Ag
111 Cd 2 115	0.006 ppb	0.00	39.50	2000.00	ND	Cd
118 Sn 2 115	0.034 ppb	0.00	12.59	500.00	ND	Sn
121 Sb 2 115	0.296 ppb	0.00	3.62	500.00	ND	Sb
137 Ba 2 115	3.525 ppb	0.00	1.12	2000.00	J	Ba
205 Tl 2 209	0.044 ppb	0.00	13.62	500.00	ND	Tl
208 Pb 2 209	0.026 ppb	0.00	4.23	2000.00	ND	Pb

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li 2	477681.25	1.08		502320.09	95.1	60 -	120	
45 Sc 1	22349.45	0.22		21794.10	102.5	60 -	120	
45 Sc 2	603314.56	0.66		614766.56	98.1	60 -	120	
72 Ge 1	14836.68	0.49		14399.89	103.0	60 -	120	
115 In 2	771377.13	1.90		778296.38	99.1	60 -	120	
209 Bi 2	557016.69	1.11		567156.00	98.2	60 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\052SMPL.D\052SMPL.D#

Date Acquired:	Jul 18 2012 04:10 pm	Sample Name:	1207088-16A
Acq. Method:	DHL_2.m	Misc Info:	SAMP6020A_W
Operator:	AR	Bench Diln:	1.00
Last Cal. Update:	Jul 18 2012 11:44 am		
Instrument:	ICPMS2		

QC Elements

Element		Conc.	Corr.	Con	RSD(%)	High Limit	Flag	
7 Li	2 45	16.460 ppb		0.00	1.67	500.00	>RL	Li
9 Be	2 45	-0.023 ppb		0.00	16.00	2000.00	ND	Be
11 B	2 45	291.600 ppb		0.00	0.60	500.00	>RL	B
23 Na	1 45	62120.000 ppb		0.00	0.30	25000.00	OUTCAL	Na
24 Mg	1 45	9743.000 ppb		0.00	0.50	25000.00	>RL	Mg
27 Al	1 45	36.070 ppb		0.00	1.40	10000.00	>RL	Al
39 K	1 45	5209.000 ppb		0.00	1.08	25000.00	>RL	K
44 Ca	2 45	181900.000 ppb		0.00	0.50	25000.00	OUTCAL	Ca
47 Ti	1 45	0.941 ppb		0.00	25.00	500.00	ND	Ti
51 V	1 45	3.753 ppb		0.00	0.89	2000.00	J	V
52 Cr	1 45	0.140 ppb		0.00	4.91	2000.00	ND	Cr
55 Mn	1 45	11.150 ppb		0.00	1.89	2000.00	>RL	Mn
56 Fe	1 72	135.900 ppb		0.00	1.13	10000.00	>RL	Fe
59 Co	1 72	0.339 ppb		0.00	1.15	2000.00	ND	Co
60 Ni	1 72	1.023 ppb		0.00	2.79	2000.00	ND	Ni
63 Cu	1 72	0.426 ppb		0.00	3.88	2000.00	ND	Cu
66 Zn	1 72	4.067 ppb		0.00	5.69	2000.00	J	Zn
75 As	1 72	2.673 ppb		0.00	2.57	2000.00	J	As
78 Se	1 72	71.390 ppb		0.00	1.09	2000.00	>RL	Se
88 Sr	2 115	722.400 ppb		0.00	2.47	500.00	OUTCAL	Sr
95 Mo	2 115	6.679 ppb		0.00	2.29	500.00	>RL	Mo
107 Ag	2 115	0.012 ppb		0.00	23.30	500.00	ND	Ag
111 Cd	2 115	0.015 ppb		0.00	7.75	2000.00	ND	Cd
118 Sn	2 115	0.190 ppb		0.00	4.21	500.00	ND	Sn
121 Sb	2 115	2.357 ppb		0.00	1.74	500.00	J	Sb
137 Ba	2 115	49.460 ppb		0.00	2.51	2000.00	>RL	Ba
205 Tl	2 209	0.067 ppb		0.00	4.00	500.00	ND	Tl
208 Pb	2 209	0.420 ppb		0.00	3.79	2000.00	J	Pb

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	460566.28	1.36		502320.09	91.7	60 -	120	
45 Sc	1		21168.49	0.74	21794.10	97.1	60 -	120	
45 Sc	2		605794.31	1.29	614766.56	98.5	60 -	120	
72 Ge	1		14143.23	1.15	14399.89	98.2	60 -	120	
115 In	2		750717.69	0.99	778296.38	96.5	60 -	120	
209 Bi	2		529383.25	1.91	567156.00	93.3	60 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\053SMPL.D\053SMPL.D#

Date Acquired: Jul 18 2012 04:16 pm Sample Name: **1207088-17A**
 Acq. Method: DHL_2.m Misc Info: SAMP6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:44 am
 Instrument: ICPMS2

QC Elements

Element	Conc.	Corr. Con	RSD(%)	High Limit	Flag	
7 Li 2 45	7.728 ppb	0.00	0.92	500.00	>RL	Li
9 Be 2 45	-0.005 ppb	0.00	5.59	2000.00	ND	Be
11 B 2 45	115.000 ppb	0.00	1.52	500.00	>RL	B
23 Na 1 45	11870.000 ppb	0.00	1.18	25000.00	>RL	Na
24 Mg 1 45	6742.000 ppb	0.00	1.24	25000.00	>RL	Mg
27 Al 1 45	100.600 ppb	0.00	2.50	10000.00	>RL	Al
39 K 1 45	2837.000 ppb	0.00	0.54	25000.00	>RL	K
44 Ca 2 45	136400.000 ppb	0.00	1.84	25000.00	OUTCAL	Ca
47 Ti 1 45	2.425 ppb	0.00	17.07	500.00	ND	Ti
51 V 1 45	4.178 ppb	0.00	1.77	2000.00	J	V
52 Cr 1 45	0.233 ppb	0.00	4.80	2000.00	ND	Cr
55 Mn 1 45	88.870 ppb	0.00	0.57	2000.00	>RL	Mn
56 Fe 1 72	747.900 ppb	0.00	0.91	10000.00	>RL	Fe
59 Co 1 72	1.118 ppb	0.00	4.82	2000.00	ND	Co
60 Ni 1 72	1.658 ppb	0.00	3.21	2000.00	ND	Ni
63 Cu 1 72	8.043 ppb	0.00	1.01	2000.00	J	Cu
66 Zn 1 72	7.030 ppb	0.00	3.44	2000.00	>RL	Zn
75 As 1 72	9.206 ppb	0.00	2.17	2000.00	>RL	As
78 Se 1 72	1.701 ppb	0.00	16.37	2000.00	ND	Se
88 Sr 2 115	319.600 ppb	0.00	0.26	500.00	>RL	Sr
95 Mo 2 115	8.757 ppb	0.00	2.03	500.00	>RL	Mo
107 Ag 2 115	0.013 ppb	0.00	22.29	500.00	ND	Ag
111 Cd 2 115	0.043 ppb	0.00	28.37	2000.00	ND	Cd
118 Sn 2 115	0.073 ppb	0.00	5.20	500.00	ND	Sn
121 Sb 2 115	302.600 ppb	0.00	1.39	500.00	>RL	Sb
137 Ba 2 115	107.100 ppb	0.00	1.50	2000.00	>RL	Ba
205 Tl 2 209	0.060 ppb	0.00	9.49	500.00	ND	Tl
208 Pb 2 209	2.668 ppb	0.00	2.44	2000.00	>RL	Pb

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li 2	45900	6.91	0.28	502320.09	91.4	60 -	120	
45 Sc 1		21869.31	0.71	21794.10	100.3	60 -	120	
45 Sc 2		601956.19	0.70	614766.56	97.9	60 -	120	
72 Ge 1		14352.95	1.16	14399.89	99.7	60 -	120	
115 In 2		753014.56	0.38	778296.38	96.8	60 -	120	
209 Bi 2		542514.81	2.30	567156.00	95.7	60 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\054SMPL.D\054SMPL.D#

Date Acquired:	Jul 18 2012 04:22 pm	Sample Name:	1207088-18A
Acq. Method:	DHL_2.m	Misc Info:	SAMP6020A_W
Operator:	AR	Bench Diln:	1.00
Last Cal. Update:	Jul 18 2012 11:44 am		
Instrument:	ICPMS2		

QC Elements

Element		Conc.	Corr.	Con	RSD(%)	High Limit	Flag	
7 Li	2 45	41.630 ppb		0.00	0.81	500.00	>RL	Li
9 Be	2 45	-0.006 ppb		0.00	28.04	2000.00	ND	Be
11 B	2 45	233.900 ppb		0.00	0.85	500.00	>RL	B
23 Na	1 45	77590.000 ppb		0.00	0.82	25000.00	OUTCAL	Na
24 Mg	1 45	11210.000 ppb		0.00	0.72	25000.00	>RL	Mg
27 Al	1 45	72.510 ppb		0.00	2.45	10000.00	>RL	Al
39 K	1 45	1973.000 ppb		0.00	1.16	25000.00	>RL	K
44 Ca	2 45	188100.000 ppb		0.00	0.96	25000.00	OUTCAL	Ca
47 Ti	1 45	1.707 ppb		0.00	24.87	500.00	ND	Ti
51 V	1 45	2.578 ppb		0.00	1.38	2000.00	ND	V
52 Cr	1 45	0.225 ppb		0.00	8.27	2000.00	ND	Cr
55 Mn	1 45	83.260 ppb		0.00	1.20	2000.00	>RL	Mn
56 Fe	1 72	329.500 ppb		0.00	0.67	10000.00	>RL	Fe
59 Co	1 72	2.180 ppb		0.00	0.04	2000.00	ND	Co
60 Ni	1 72	3.161 ppb		0.00	4.10	2000.00	J	Ni
63 Cu	1 72	2.265 ppb		0.00	2.44	2000.00	J	Cu
66 Zn	1 72	8.996 ppb		0.00	4.29	2000.00	>RL	Zn
75 As	1 72	0.917 ppb		0.00	3.24	2000.00	ND	As
78 Se	1 72	3.391 ppb		0.00	2.71	2000.00	J	Se
88 Sr	2 115	1241.000 ppb		0.00	0.93	500.00	OUTCAL	Sr
95 Mo	2 115	0.929 ppb		0.00	11.32	500.00	ND	Mo
107 Ag	2 115	0.021 ppb		0.00	13.64	500.00	ND	Ag
111 Cd	2 115	0.080 ppb		0.00	8.66	2000.00	ND	Cd
118 Sn	2 115	0.169 ppb		0.00	3.28	500.00	ND	Sn
121 Sb	2 115	0.772 ppb		0.00	4.69	500.00	ND	Sb
137 Ba	2 115	80.730 ppb		0.00	0.27	2000.00	>RL	Ba
205 Tl	2 209	0.049 ppb		0.00	1.51	500.00	ND	Tl
208 Pb	2 209	3.682 ppb		0.00	1.20	2000.00	>RL	Pb

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	451686.13	0.85		502320.09	89.9	60 -	120	
45 Sc	1		21800.77	1.26	21794.10	100.0	60 -	120	
45 Sc	2		599265.06	0.55	614766.56	97.5	60 -	120	
72 Ge	1		14200.61	1.64	14399.89	98.6	60 -	120	
115 In	2		738017.13	0.11	778296.38	94.8	60 -	120	
209 Bi	2		520724.69	0.98	567156.00	91.8	60 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\055SMPL.D\055SMPL.D#

Date Acquired:	Jul 18 2012 04:28 pm	Sample Name:	1207088-19A
Acq. Method:	DHL_2.m	Misc Info:	SAMP6020A_W
Operator:	AR	Bench Diln:	1.00
Last Cal. Update:	Jul 18 2012 11:44 am		
Instrument:	ICPMS2		

QC Elements

Element		Conc.	Corr.	Con	RSD(%)	High Limit	Flag	
7 Li	2 45	21.330 ppb		0.00	0.44	500.00	>RL	Li
9 Be	2 45	0.016 ppb		0.00	16.39	2000.00	ND	Be
11 B	2 45	170.000 ppb		0.00	0.69	500.00	>RL	B
23 Na	1 45	102600.000 ppb		0.00	0.88	25000.00	OUTCAL	Na
24 Mg	1 45	22310.000 ppb		0.00	0.50	25000.00	>RL	Mg
27 Al	1 45	185.300 ppb		0.00	1.48	10000.00	>RL	Al
39 K	1 45	5644.000 ppb		0.00	0.54	25000.00	>RL	K
44 Ca	2 45	175700.000 ppb		0.00	0.33	25000.00	OUTCAL	Ca
47 Ti	1 45	7.520 ppb		0.00	11.00	500.00	J	Ti
51 V	1 45	4.172 ppb		0.00	1.07	2000.00	J	V
52 Cr	1 45	1.072 ppb		0.00	4.18	2000.00	ND	Cr
55 Mn	1 45	93.130 ppb		0.00	1.56	2000.00	>RL	Mn
56 Fe	1 72	742.100 ppb		0.00	0.44	10000.00	>RL	Fe
59 Co	1 72	2.806 ppb		0.00	1.51	2000.00	ND	Co
60 Ni	1 72	11.450 ppb		0.00	2.02	2000.00	>RL	Ni
63 Cu	1 72	77.240 ppb		0.00	0.98	2000.00	>RL	Cu
66 Zn	1 72	108.900 ppb		0.00	0.75	2000.00	>RL	Zn
75 As	1 72	90.400 ppb		0.00	1.02	2000.00	>RL	As
78 Se	1 72	116.200 ppb		0.00	1.76	2000.00	>RL	Se
88 Sr	2 115	589.600 ppb		0.00	0.66	500.00	OUTCAL	Sr
95 Mo	2 115	190.700 ppb		0.00	0.37	500.00	>RL	Mo
107 Ag	2 115	0.035 ppb		0.00	7.82	500.00	ND	Ag
111 Cd	2 115	0.540 ppb		0.00	0.60	2000.00	J	Cd
118 Sn	2 115	0.286 ppb		0.00	2.99	500.00	ND	Sn
121 Sb	2 115	513.200 ppb		0.00	0.42	500.00	OUTCAL	Sb
137 Ba	2 115	94.670 ppb		0.00	0.94	2000.00	>RL	Ba
205 Tl	2 209	0.110 ppb		0.00	1.35	500.00	ND	Tl
208 Pb	2 209	11.260 ppb		0.00	1.39	2000.00	>RL	Pb

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	454156.19	1.31		502320.09	90.4	60 -	120	
45 Sc	1	21862.63	0.19		21794.10	100.3	60 -	120	
45 Sc	2	606967.06	0.50		614766.56	98.7	60 -	120	
72 Ge	1	14290.01	0.72		14399.89	99.2	60 -	120	
115 In	2	743516.38	0.14		778296.38	95.5	60 -	120	
209 Bi	2	510734.53	0.33		567156.00	90.1	60 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\056CCV1.D\056CCV1.D#

Date Acquired: Jul 18 2012 04:34 pm Sample Name:
 Acq. Method: DHL_2.m Misc Info:
 Operator: AR Diln Factor:
 Last Cal. Update: Jul 18 2012 11:44 am
 Instrument: ICPMS2

CCV2-120718
 CCV ICPMS_TW

QC Elements

Element		Conc.	RSD (%)	Expected QC	Range (%)	Rec (%)	Flag
7 Li	2	45	201.90 ppb	1.43	200.00	90 -	110 101.0
9 Be	2	45	196.40 ppb	1.46	200.00	90 -	110 98.2
11 B	2	45	206.60 ppb	2.01	200.00	90 -	110 103.3
23 Na	1	45	5383.00 ppb	1.10	5000.00	90 -	110 107.7
24 Mg	1	45	5263.00 ppb	1.46	5000.00	90 -	110 105.3
27 Al	1	45	5159.00 ppb	0.78	5000.00	90 -	110 103.2
39 K	1	45	5220.00 ppb	1.01	5000.00	90 -	110 104.4
44 Ca	2	45	5249.00 ppb	0.69	5000.00	90 -	110 105.0
47 Ti	1	45	207.10 ppb	1.66	200.00	90 -	110 103.6
51 V	1	45	206.70 ppb	0.83	200.00	90 -	110 103.4
52 Cr	1	45	213.00 ppb	0.32	200.00	90 -	110 106.5
55 Mn	1	45	210.80 ppb	0.36	200.00	90 -	110 105.4
56 Fe	1	72	5420.00 ppb	0.37	5000.00	90 -	110 108.4
59 Co	1	72	213.20 ppb	0.50	200.00	90 -	110 106.6
60 Ni	1	72	217.20 ppb	0.90	200.00	90 -	110 108.6
63 Cu	1	72	215.40 ppb	1.04	200.00	90 -	110 107.7
66 Zn	1	72	215.40 ppb	1.92	200.00	90 -	110 107.7
75 As	1	72	209.60 ppb	1.12	200.00	90 -	110 104.8
78 Se	1	72	206.00 ppb	1.39	200.00	90 -	110 103.0
88 Sr	2	115	205.40 ppb	0.68	200.00	90 -	110 102.7
95 Mo	2	115	204.30 ppb	0.80	200.00	90 -	110 102.2
107 Ag	2	115	210.30 ppb	2.53	200.00	90 -	110 105.2
111 Cd	2	115	203.30 ppb	1.92	200.00	90 -	110 101.7
118 Sn	2	115	200.90 ppb	1.15	200.00	90 -	110 100.5
121 Sb	2	115	200.90 ppb	2.70	200.00	90 -	110 100.5
137 Ba	2	115	196.60 ppb	3.18	200.00	90 -	110 98.3
205 Tl	2	209	198.40 ppb	1.22	200.00	90 -	110 99.2
208 Pb	2	209	198.80 ppb	2.03	200.00	90 -	110 99.4

ISTD Elements

Element		CPS	Mean	RSD (%)	Ref Value	Rec (%)	QC	Range (%)	Flag
6 Li	2	423249.78	1.06	502320.09		84.3	60 -	120	
45 Sc	1	21311.56	0.34	21794.10		97.8	60 -	120	
45 Sc	2	605492.19	0.98	614766.56		98.5	60 -	120	
72 Ge	1	14016.24	0.33	14399.89		97.3	60 -	120	
115 In	2	759654.31	0.26	778296.38		97.6	60 -	120	
209 Bi	2	554920.75	2.08	567156.00		97.8	60 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\062LCVL.D\062LCVL.D#

Date Acquired:	Jul 18 2012 05:09 pm	Sample Name:	LCVL2-120718
Acq. Method:	DHL_2.m	Misc Info:	LCVL6020A_W
Operator:	AR	Diln Factor:	1.00
Last Cal. Update:	Jul 18 2012 11:44 am		
Instrument:	ICPMS2		

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2 45	4.87 ppb	1.52	5.00	70 - 130	97.4	
9 Be	2 45	0.92 ppb	3.09	1.00	70 - 130	91.6	
11 B	2 45	24.88 ppb	1.29	5.00	70 - 130	497.6 Fail	
23 Na	1 45	118.60 ppb	0.61	100.00	70 - 130	118.6	
24 Mg	1 45	106.70 ppb	0.58	100.00	70 - 130	106.7	
27 Al	1 45	102.80 ppb	3.35	100.00	70 - 130	102.8	
39 K	1 45	106.50 ppb	1.90	100.00	70 - 130	106.5	
44 Ca	2 45	139.60 ppb	1.34	100.00	70 - 130	139.6 Fail	
47 Ti	1 45	5.20 ppb	12.31	5.00	70 - 130	104.0	
51 V	1 45	1.10 ppb	3.49	1.00	70 - 130	109.7	
52 Cr	1 45	5.18 ppb	2.22	5.00	70 - 130	103.6	
55 Mn	1 45	5.25 ppb	4.10	5.00	70 - 130	105.1	
56 Fe	1 72	122.00 ppb	1.09	100.00	70 - 130	122.0	
59 Co	1 72	5.25 ppb	0.82	5.00	70 - 130	104.9	
60 Ni	1 72	5.23 ppb	2.61	5.00	70 - 130	104.6	
63 Cu	1 72	5.08 ppb	3.43	5.00	70 - 130	101.7	
66 Zn	1 72	5.10 ppb	7.25	5.00	70 - 130	102.0	
75 As	1 72	5.19 ppb	1.63	5.00	70 - 130	103.7	
78 Se	1 72	5.42 ppb	2.03	5.00	70 - 130	108.5	
88 Sr	2 115	5.12 ppb	0.44	5.00	70 - 130	102.5	
95 Mo	2 115	5.08 ppb	2.40	5.00	70 - 130	101.7	
107 Ag	2 115	2.04 ppb	3.06	2.00	70 - 130	102.0	
111 Cd	2 115	0.97 ppb	5.77	1.00	70 - 130	97.3	
118 Sn	2 115	5.16 ppb	1.24	5.00	70 - 130	103.2	
121 Sb	2 115	2.12 ppb	2.84	2.00	70 - 130	105.8	
137 Ba	2 115	4.76 ppb	4.78	5.00	70 - 130	95.2	
205 Tl	2 209	1.09 ppb	2.87	1.00	70 - 130	109.0	
208 Pb	2 209	0.94 ppb	3.80	1.00	70 - 130	93.8	

ISTD Elements

Element		CPS Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	482975.00	0.80	502320.09	96.1	60 -	120	
45 Sc	1	22983.98	1.61	21794.10	105.5	60 -	120	
45 Sc	2	614395.19	1.10	614766.56	99.9	60 -	120	
72 Ge	1	14892.28	0.25	14399.89	103.4	60 -	120	
115 In	2	781639.13	0.89	778296.38	100.4	60 -	120	
209 Bi	2	564879.69	1.68	567156.00	99.6	60 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\064_CCB.D\064_CCB.D#

Date Acquired:	Jul 18 2012 05:21 pm	Sample Name:	CCB2-120718
Acq. Method:	DHL_2.m	Misc Info:	CCB ICPMS_TW
Operator:	AR	Diln Factor:	1.00
Last Cal. Update:	Jul 18 2012 11:44 am		
Instrument:	ICPMS2		

QC Elements

Element		Conc.	RSD(%)	MDL S	MDL Aq	Flag
7 Li	2 45	-0.056 ppb	1.51	2.00	2.00	
9 Be	2 45	-0.018 ppb	33.53	0.10	0.30	
11 B	2 45	5.885 ppb	3.26	10.00	10.00	
23 Na	1 45	10.940 ppb	1.01	50.00	#####	
24 Mg	1 45	2.727 ppb	14.24	50.00	#####	
27 Al	1 45	0.061 ppb	4.32	50.00	10.00	
39 K	1 45	-1.055 ppb	2.91	50.00	#####	
44 Ca	2 45	30.490 ppb	3.83	50.00	#####	
47 Ti	1 45	0.058 ppb	86.59	4.00	3.00	
51 V	1 45	0.033 ppb	10.36	4.00	3.00	
52 Cr	1 45	-0.040 ppb	6.72	2.00	2.00	
55 Mn	1 45	0.014 ppb	22.18	2.00	3.00	
56 Fe	1 72	0.665 ppb	2.17	50.00	50.00	
59 Co	1 72	0.001 ppb	12.59	2.00	3.00	
60 Ni	1 72	-0.026 ppb	5.91	2.00	3.00	
63 Cu	1 72	-0.078 ppb	0.49	2.00	2.00	
66 Zn	1 72	-0.180 ppb	8.98	4.00	2.00	
75 As	1 72	-0.001 ppb	14.76	2.00	2.00	
78 Se	1 72	0.107 ppb	8.12	0.60	2.00	
88 Sr	2 115	0.143 ppb	8.62	4.00	3.00	
95 Mo	2 115	0.075 ppb	11.32	2.00	2.00	
107 Ag	2 115	0.022 ppb	8.72	0.40	1.00	
111 Cd	2 115	0.003 ppb	24.84	0.40	0.30	
118 Sn	2 115	0.013 ppb	16.63	4.00	3.00	
121 Sb	2 115	0.047 ppb	7.39	2.00	0.80	
137 Ba	2 115	0.010 ppb	16.34	2.00	3.00	
205 Tl	2 209	0.064 ppb	1.83	2.00	0.50	
208 Pb	2 209	-0.030 ppb	4.80	0.40	0.30	

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	487002.06	2.28	2.28	502320.09	97.0	60 -	120	
45 Sc	1	22263.36	0.51	0.51	21794.10	102.2	60 -	120	
45 Sc	2	612389.88	0.83	0.83	614766.56	99.6	60 -	120	
72 Ge	1	14485.51	1.08	1.08	14399.89	100.6	60 -	120	
115 In	2	780597.06	0.89	0.89	778296.38	100.3	60 -	120	
209 Bi	2	564989.81	0.55	0.55	567156.00	99.6	60 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\103CCV1.D\103CCV1.D#

Date Acquired:	Jul 18 2012 09:13 pm	Sample Name:	CCV4-120718
Acq. Method:	DHL_2.m	Misc Info:	CCV ICPMS_TW
Operator:	AR	Diln Factor:	1.00
Last Cal. Update:	Jul 18 2012 11:44 am		
Instrument:	ICPMS2		

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2 45	205.10 ppb	2.65	200.00	90 -	110	102.6
9 Be	2 45	196.90 ppb	1.82	200.00	90 -	110	98.5
11 B	2 45	292.10 ppb	1.98	200.00	90 -	110	146.1 Fail
23 Na	1 45	5518.00 ppb	0.17	5000.00	90 -	110	110.4 Fail
24 Mg	1 45	5358.00 ppb	0.33	5000.00	90 -	110	107.2
27 Al	1 45	5312.00 ppb	1.18	5000.00	90 -	110	106.2
39 K	1 45	5365.00 ppb	1.01	5000.00	90 -	110	107.3
44 Ca	2 45	5416.00 ppb	2.90	5000.00	90 -	110	108.3
47 Ti	1 45	210.20 ppb	0.77	200.00	90 -	110	105.1
51 V	1 45	208.80 ppb	0.25	200.00	90 -	110	104.4
52 Cr	1 45	212.80 ppb	0.21	200.00	90 -	110	106.4
55 Mn	1 45	215.10 ppb	0.46	200.00	90 -	110	107.6
56 Fe	1 72	5390.00 ppb	0.77	5000.00	90 -	110	107.8
59 Co	1 72	210.30 ppb	0.57	200.00	90 -	110	105.2
60 Ni	1 72	213.50 ppb	1.13	200.00	90 -	110	106.8
63 Cu	1 72	211.10 ppb	0.76	200.00	90 -	110	105.6
66 Zn	1 72	215.30 ppb	0.95	200.00	90 -	110	107.7
75 As	1 72	210.20 ppb	0.19	200.00	90 -	110	105.1
78 Se	1 72	213.30 ppb	0.18	200.00	90 -	110	106.7
88 Sr	2 115	208.40 ppb	1.40	200.00	90 -	110	104.2
95 Mo	2 115	207.60 ppb	1.35	200.00	90 -	110	103.8
107 Ag	2 115	212.60 ppb	3.43	200.00	90 -	110	106.3
111 Cd	2 115	206.00 ppb	2.85	200.00	90 -	110	103.0
118 Sn	2 115	206.30 ppb	1.65	200.00	90 -	110	103.2
121 Sb	2 115	204.80 ppb	2.73	200.00	90 -	110	102.4
137 Ba	2 115	201.00 ppb	3.23	200.00	90 -	110	100.5
205 Tl	2 209	201.60 ppb	2.85	200.00	90 -	110	100.8
208 Pb	2 209	202.10 ppb	2.36	200.00	90 -	110	101.1

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	409328.75	1.51	502320.09		81.5	60 -	120	
45 Sc	1	21501.54	0.86	21794.10		98.7	60 -	120	
45 Sc	2	589127.19	1.77	614766.56		95.8	60 -	120	
72 Ge	1	14289.35	0.21	14399.89		99.2	60 -	120	
115 In	2	746838.50	2.67	778296.38		96.0	60 -	120	
209 Bi	2	548311.00	2.24	567156.00		96.7	60 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\109LCVL.D\109LCVL.D#

Date Acquired:	Jul 18 2012 09:49 pm	Sample Name:	LCVL4-120718
Acq. Method:	DHL_2.m	Misc Info:	LCVL6020A_W
Operator:	AR	Diln Factor:	1.00
Last Cal. Update:	Jul 18 2012 11:44 am		
Instrument:	ICPMS2		

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2 45	4.91 ppb	0.85	5.00	70 - 130	98.2	
9 Be	2 45	0.97 ppb	1.99	1.00	70 - 130	97.3	
11 B	2 45	62.84 ppb	0.24	5.00	70 - 130	1256.8	Fail
23 Na	1 45	175.50 ppb	1.13	100.00	70 - 130	175.5	Fail
24 Mg	1 45	109.00 ppb	2.04	100.00	70 - 130	109.0	
27 Al	1 45	100.40 ppb	2.83	100.00	70 - 130	100.4	
39 K	1 45	100.60 ppb	0.53	100.00	70 - 130	100.6	
44 Ca	2 45	122.00 ppb	2.12	100.00	70 - 130	122.0	
47 Ti	1 45	5.18 ppb	4.75	5.00	70 - 130	103.7	
51 V	1 45	1.01 ppb	3.44	1.00	70 - 130	100.6	
52 Cr	1 45	5.05 ppb	2.93	5.00	70 - 130	101.0	
55 Mn	1 45	5.12 ppb	1.38	5.00	70 - 130	102.4	
56 Fe	1 72	122.20 ppb	0.73	100.00	70 - 130	122.2	
59 Co	1 72	5.24 ppb	0.93	5.00	70 - 130	104.9	
60 Ni	1 72	5.40 ppb	1.96	5.00	70 - 130	107.9	
63 Cu	1 72	5.05 ppb	1.65	5.00	70 - 130	101.1	
66 Zn	1 72	5.13 ppb	4.15	5.00	70 - 130	102.6	
75 As	1 72	5.15 ppb	0.84	5.00	70 - 130	103.0	
78 Se	1 72	5.24 ppb	6.56	5.00	70 - 130	104.8	
88 Sr	2 115	5.14 ppb	0.49	5.00	70 - 130	102.7	
95 Mo	2 115	5.13 ppb	2.09	5.00	70 - 130	102.6	
107 Ag	2 115	2.08 ppb	1.85	2.00	70 - 130	104.1	
111 Cd	2 115	0.94 ppb	4.54	1.00	70 - 130	94.5	
118 Sn	2 115	5.18 ppb	2.40	5.00	70 - 130	103.6	
121 Sb	2 115	2.08 ppb	2.20	2.00	70 - 130	104.0	
137 Ba	2 115	4.77 ppb	3.12	5.00	70 - 130	95.3	
205 Tl	2 209	1.09 ppb	0.48	1.00	70 - 130	109.3	
208 Pb	2 209	0.98 ppb	1.04	1.00	70 - 130	97.9	

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	453281.09	1.44	502320.09		90.2	60 -	120	
45 Sc	1	22165.67	0.82	21794.10		101.7	60 -	120	
45 Sc	2	581307.06	0.27	614766.56		94.6	60 -	120	
72 Ge	1	14326.04	0.79	14399.89		99.5	60 -	120	
115 In	2	755205.25	0.38	778296.38		97.0	60 -	120	
209 Bi	2	552135.38	0.89	567156.00		97.4	60 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\111_CCB.D\111_CCB.D#

Date Acquired:	Jul 18 2012 10:01 pm	Sample Name:	CCB4-120718
Acq. Method:	DHL_2.m	Misc Info:	CCB ICPMS_TW
Operator:	AR	Diln Factor:	1.00
Last Cal. Update:	Jul 18 2012 11:44 am		
Instrument:	ICPMS2		

QC Elements

Element		Conc.	RSD(%)	MDL S	MDL Aq	Flag
7 Li	2 45	-0.074 ppb	1.53	2.00	2.00	
9 Be	2 45	-0.012 ppb	17.12	0.10	0.30	
11 B	2 45	46.020 ppb	1.35	10.00	10.00	Failsoil
23 Na	1 45	62.330 ppb	1.16	50.00	#####	Failsoil
24 Mg	1 45	3.183 ppb	22.83	50.00	#####	
27 Al	1 45	-0.609 ppb	14.47	50.00	10.00	
39 K	1 45	2.240 ppb	0.73	50.00	#####	
44 Ca	2 45	14.920 ppb	4.62	50.00	#####	
47 Ti	1 45	0.004 ppb	99.97	4.00	3.00	
51 V	1 45	0.055 ppb	18.65	4.00	3.00	
52 Cr	1 45	0.014 ppb	3.47	2.00	2.00	
55 Mn	1 45	0.058 ppb	11.70	2.00	3.00	
56 Fe	1 72	1.316 ppb	3.48	50.00	50.00	
59 Co	1 72	0.016 ppb	9.04	2.00	3.00	
60 Ni	1 72	-0.020 ppb	9.08	2.00	3.00	
63 Cu	1 72	-0.076 ppb	3.28	2.00	2.00	
66 Zn	1 72	-0.219 ppb	24.41	4.00	2.00	
75 As	1 72	0.013 ppb	4.36	2.00	2.00	
78 Se	1 72	0.105 ppb	9.46	0.60	2.00	
88 Sr	2 115	0.117 ppb	5.09	4.00	3.00	
95 Mo	2 115	0.143 ppb	13.06	2.00	2.00	
107 Ag	2 115	0.028 ppb	8.14	0.40	1.00	
111 Cd	2 115	-0.016 ppb	65.35	0.40	0.30	
118 Sn	2 115	0.021 ppb	15.79	4.00	3.00	
121 Sb	2 115	0.086 ppb	7.20	2.00	0.80	
137 Ba	2 115	0.038 ppb	7.92	2.00	3.00	
205 Tl	2 209	0.089 ppb	0.97	2.00	0.50	
208 Pb	2 209	-0.010 ppb	9.77	0.40	0.30	

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	447773.47	0.96	502320.09	89.1	60 -	120		
45 Sc	1	20362.02	0.61	21794.10	93.4	60 -	120		
45 Sc	2	569754.19	0.15	614766.56	92.7	60 -	120		
72 Ge	1	13496.95	1.25	14399.89	93.7	60 -	120		
115 In	2	737044.19	1.14	778296.38	94.7	60 -	120		
209 Bi	2	544285.38	0.43	567156.00	96.0	60 -	120		

ICSA QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\112ICSA.D\112ICSA.D#

ICSA2-120718

ICSAICPMS_TW

Date Acquired: Jul 18 2012 10:07 pm Sample Name:
 Acq. Method: DHL_2.m Misc Info:
 Operator: AR Diln Factor:
 Last Cal. Update: Jul 18 2012 11:44 am
 Instrument: ICPMS2

QC Elements

Element		Conc.	RSD(%)	RL S	RL Aq	Flag
7 Li	2	45 -0.143 ppb	0.46	8.00	5.00	
9 Be	2	45 -0.025 ppb	20.15	0.32	0.80	
11 B	2	45 40.520 ppb	1.86	30.00	30.00	FailSoil
23 Na	1	45 101600.000 ppb	1.30	#####	#####	
24 Mg	1	45 102600.000 ppb	1.07	#####	#####	
27 Al	1	45 100100.000 ppb	0.71	#####	#####	
39 K	1	45 101000.000 ppb	1.81	#####	#####	
44 Ca	2	45 101400.000 ppb	1.10	#####	#####	
47 Ti	1	45 2142.000 ppb	1.12	10.00	10.00	
51 V	1	45 0.211 ppb	8.40	10.00	10.00	
52 Cr	1	45 0.945 ppb	0.88	8.00	5.00	
55 Mn	1	45 1.588 ppb	3.26	8.00	10.00	
56 Fe	1	72 96010.000 ppb	1.88	#####	#####	
59 Co	1	72 1.435 ppb	2.56	8.00	10.00	
60 Ni	1	72 1.567 ppb	5.93	8.00	10.00	
63 Cu	1	72 0.175 ppb	5.28	8.00	10.00	
66 Zn	1	72 1.619 ppb	4.93	10.00	5.00	
75 As	1	72 0.269 ppb	8.29	4.00	5.00	
78 Se	1	72 0.285 ppb	8.49	2.00	5.00	
88 Sr	2	115 0.575 ppb	2.95	10.00	10.00	
95 Mo	2	115 2155.000 ppb	0.47	8.00	5.00	
107 Ag	2	115 0.236 ppb	5.73	0.80	2.00	
111 Cd	2	115 0.412 ppb	25.53	1.20	1.00	
118 Sn	2	115 0.072 ppb	7.43	10.00	10.00	
121 Sb	2	115 0.416 ppb	2.90	4.00	2.50	
137 Ba	2	115 0.152 ppb	5.01	8.00	10.00	
205 Tl	2	209 0.066 ppb	4.98	4.00	1.50	
208 Pb	2	209 0.229 ppb	1.63	1.20	1.00	

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec (%)	QC Range(%)	Flag
6 Li	2	417885.97	0.29	502320.09	83.2	60 -	120	
45 Sc	1	20506.62	0.97	21794.10	94.1	60 -	120	
45 Sc	2	552373.63	0.65	614766.56	89.9	60 -	120	
72 Ge	1	13931.72	2.07	14399.89	96.7	60 -	120	
115 In	2	679592.25	0.35	778296.38	87.3	60 -	120	
209 Bi	2	478786.50	0.22	567156.00	84.4	60 -	120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\113ICSB.D\113ICSB.D#

Date Acquired:	Jul 18 2012 10:13 pm	Sample Name:	ICSAB2-12071
Acq. Method:	DHL_2.m	Misc Info:	ICSBICPMS_TW
Operator:	AR	Diln Factor:	1.00
Last Cal. Update:	Jul 18 2012 11:44 am		
Instrument:	ICPMS2		

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Flag
7 Li	2 45	-0.12 ppb	0.90	---	80 - 120	
9 Be	2 45	-0.02 ppb	34.51	---	80 - 120	
11 B	2 45	38.22 ppb	1.30	---	80 - 120	
23 Na	1 45	101800.00 ppb	1.50	100000.00	80 - 120	
24 Mg	1 45	102900.00 ppb	1.34	100000.00	80 - 120	
27 Al	1 45	99540.00 ppb	0.52	100000.00	80 - 120	
39 K	1 45	101400.00 ppb	0.93	100000.00	80 - 120	
44 Ca	2 45	101400.00 ppb	1.20	100000.00	80 - 120	
47 Ti	1 45	2190.00 ppb	1.08	---	80 - 120	
51 V	1 45	42.18 ppb	0.92	40.00	80 - 120	
52 Cr	1 45	22.40 ppb	1.48	20.00	80 - 120	
55 Mn	1 45	23.79 ppb	0.13	20.00	80 - 120	
56 Fe	1 72	97620.00 ppb	1.57	100000.00	80 - 120	
59 Co	1 72	41.51 ppb	1.35	40.00	80 - 120	
60 Ni	1 72	40.28 ppb	2.01	40.00	80 - 120	
63 Cu	1 72	19.64 ppb	1.05	20.00	80 - 120	
66 Zn	1 72	22.06 ppb	1.03	20.00	80 - 120	
75 As	1 72	19.69 ppb	2.32	20.00	80 - 120	
78 Se	1 72	18.49 ppb	2.77	20.00	80 - 120	
88 Sr	2 115	0.58 ppb	4.09	---	80 - 120	
95 Mo	2 115	2180.00 ppb	0.48	---	80 - 120	
107 Ag	2 115	20.06 ppb	1.30	20.00	80 - 120	
111 Cd	2 115	9.20 ppb	3.03	10.00	80 - 120	
118 Sn	2 115	0.34 ppb	3.16	---	80 - 120	
121 Sb	2 115	0.55 ppb	3.02	---	80 - 120	
137 Ba	2 115	0.18 ppb	11.03	---	80 - 120	
205 Tl	2 209	0.13 ppb	1.36	---	80 - 120	
208 Pb	2 209	0.38 ppb	5.14	---	80 - 120	

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	411909.16	0.74	502320.09	82.0	60 - 120			
45 Sc	1	20230.32	0.64	21794.10	92.8	60 - 120			
45 Sc	2	554327.50	1.05	614766.56	90.2	60 - 120			
72 Ge	1	13696.65	0.41	14399.89	95.1	60 - 120			
115 In	2	681535.06	1.33	778296.38	87.6	60 - 120			
209 Bi	2	477456.41	1.01	567156.00	84.2	60 - 120			

Sample QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\129SMPL.D\129SMPL.D#

Date Acquired:	Jul 18 2012 11:48 pm	Sample Name:	1207088-19A
Acq. Method:	DHL_2.m	Misc Info:	SAMP6020A_W
Operator:	AR	Bench Diln:	5.00
Last Cal. Update:	Jul 18 2012 11:44 am		
Instrument:	ICPMS2		

QC Elements

Element	Conc.	Corr.	Con	RSD(%)	High	Limit	Flag	
7 Li 2 45	3.699 ppb		0.00	0.55	500.00		J	Li
9 Be 2 45	-0.036 ppb		0.00	24.99	2000.00		ND	Be
11 B 2 45	80.070 ppb		0.00	0.49	500.00		>RL	B
23 Na 1 45	22160.000 ppb		0.00	0.76	25000.00		>RL	Na
24 Mg 1 45	4526.000 ppb		0.00	1.08	25000.00		>RL	Mg
27 Al 1 45	37.560 ppb		0.00	5.64	10000.00		>RL	Al
39 K 1 45	1145.000 ppb		0.00	1.87	25000.00		>RL	K
44 Ca 2 45	37640.000 ppb		0.00	1.69	25000.00		OUTCAL	Ca
47 Ti 1 45	1.708 ppb		0.00	4.00	500.00		ND	Ti
51 V 1 45	0.950 ppb		0.00	7.09	2000.00		ND	V
52 Cr 1 45	0.271 ppb		0.00	3.35	2000.00		ND	Cr
55 Mn 1 45	20.630 ppb		0.00	2.27	2000.00		>RL	Mn
56 Fe 1 72	153.400 ppb		0.00	2.16	10000.00		>RL	Fe
59 Co 1 72	0.546 ppb		0.00	1.72	2000.00		ND	Co
60 Ni 1 72	2.299 ppb		0.00	3.29	2000.00		ND	Ni
63 Cu 1 72	16.280 ppb		0.00	0.89	2000.00		>RL	Cu
66 Zn 1 72	23.750 ppb		0.00	1.01	2000.00		>RL	Zn
75 As 1 72	18.410 ppb		0.00	0.86	2000.00		>RL	As
78 Se 1 72	24.280 ppb		0.00	3.92	2000.00		>RL	Se
88 Sr 2 115	119.400 ppb		0.00	0.93	500.00		>RL	Sr
95 Mo 2 115	38.280 ppb		0.00	0.83	500.00		>RL	Mo
107 Ag 2 115	0.020 ppb		0.00	10.63	500.00		ND	Ag
111 Cd 2 115	0.146 ppb		0.00	16.86	2000.00		ND	Cd
118 Sn 2 115	0.190 ppb		0.00	4.18	500.00		ND	Sn
121 Sb 2 115	105.100 ppb		0.00	0.71	500.00		>RL	Sb
137 Ba 2 115	19.550 ppb		0.00	0.11	2000.00		>RL	Ba
205 Tl 2 209	0.048 ppb		0.00	4.64	500.00		ND	Tl
208 Pb 2 209	2.268 ppb		0.00	3.58	2000.00		>RL	Pb

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li 2	374112.41	0.73		502320.09	74.5	60 -	120	
45 Sc 1	18741.64	0.62		21794.10	86.0	60 -	120	
45 Sc 2	537591.13	0.92		614766.56	87.4	60 -	120	
72 Ge 1	13268.34	1.13		14399.89	92.1	60 -	120	
115 In 2	732651.31	0.56		778296.38	94.1	60 -	120	
209 Bi 2	552777.56	1.11		567156.00	97.5	60 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\133CCV1.D\133CCV1.D#

Date Acquired:	Jul 19 2012 12:11 am	Sample Name:	CCV5-120718
Acq. Method:	DHL_2.m	Misc Info:	CCV ICPMS_TW
Operator:	AR	Diln Factor:	1.00
Last Cal. Update:	Jul 18 2012 11:44 am		
Instrument:	ICPMS2		

QC Elements

Element		Conc.	RSD (%)	Expected QC	Range (%)	Rec (%)	Flag
7 Li	2 45	198.20 ppb	1.75	200.00	90 -	110	99.1
9 Be	2 45	191.80 ppb	2.15	200.00	90 -	110	95.9
11 B	2 45	230.90 ppb	1.86	200.00	90 -	110	115.5 Fail
23 Na	1 45	5431.00 ppb	0.10	5000.00	90 -	110	108.6
24 Mg	1 45	5312.00 ppb	1.17	5000.00	90 -	110	106.2
27 Al	1 45	5230.00 ppb	0.58	5000.00	90 -	110	104.6
39 K	1 45	5372.00 ppb	0.68	5000.00	90 -	110	107.4
44 Ca	2 45	5429.00 ppb	1.94	5000.00	90 -	110	108.6
47 Ti	1 45	210.80 ppb	0.46	200.00	90 -	110	105.4
51 V	1 45	210.70 ppb	0.51	200.00	90 -	110	105.4
52 Cr	1 45	214.40 ppb	0.84	200.00	90 -	110	107.2
55 Mn	1 45	217.10 ppb	0.91	200.00	90 -	110	108.6
56 Fe	1 72	5540.00 ppb	0.76	5000.00	90 -	110	110.8 Fail
59 Co	1 72	212.50 ppb	0.55	200.00	90 -	110	106.3
60 Ni	1 72	214.70 ppb	1.19	200.00	90 -	110	107.4
63 Cu	1 72	212.90 ppb	0.91	200.00	90 -	110	106.5
66 Zn	1 72	217.50 ppb	0.85	200.00	90 -	110	108.8
75 As	1 72	211.20 ppb	0.53	200.00	90 -	110	105.6
78 Se	1 72	212.80 ppb	1.55	200.00	90 -	110	106.4
88 Sr	2 115	213.70 ppb	1.91	200.00	90 -	110	106.9
95 Mo	2 115	213.20 ppb	1.74	200.00	90 -	110	106.6
107 Ag	2 115	216.40 ppb	2.07	200.00	90 -	110	108.2
111 Cd	2 115	209.90 ppb	1.81	200.00	90 -	110	105.0
118 Sn	2 115	210.80 ppb	2.02	200.00	90 -	110	105.4
121 Sb	2 115	208.20 ppb	2.15	200.00	90 -	110	104.1
137 Ba	2 115	201.40 ppb	2.72	200.00	90 -	110	100.7
205 Tl	2 209	205.40 ppb	2.02	200.00	90 -	110	102.7
208 Pb	2 209	205.50 ppb	2.24	200.00	90 -	110	102.8

ISTD Elements

Element		CPS	Mean	RSD (%)	Ref Value	Rec (%)	QC	Range (%)	Flag
6 Li	2	355518.28	1.55	502320.09		70.8	60 -	120	
45 Sc	1	20154.91	1.32	21794.10		92.5	60 -	120	
45 Sc	2	549860.56	2.16	614766.56		89.4	60 -	120	
72 Ge	1	13391.09	0.66	14399.89		93.0	60 -	120	
115 In	2	718080.38	2.35	778296.38		92.3	60 -	120	
209 Bi	2	538403.31	1.99	567156.00		94.9	60 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\134CCV1.D\134CCV1.D#

Date Acquired:	Jul 19 2012 12:17 am	Sample Name:	CCV5-120718
Acq. Method:	DHL_2.m	Misc Info:	CCV ICPMS_TW
Operator:	AR	Diln Factor:	1.00
Last Cal. Update:	Jul 18 2012 11:44 am		
Instrument:	ICPMS2		

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2 45	186.20 ppb	0.87	200.00	90 - 110	110	93.1
9 Be	2 45	184.20 ppb	1.36	200.00	90 - 110	110	92.1
11 B	2 45	214.70 ppb	1.22	200.00	90 - 110	110	107.4
23 Na	1 45	5201.00 ppb	1.02	5000.00	90 - 110	110	104.0
24 Mg	1 45	5193.00 ppb	1.50	5000.00	90 - 110	110	103.9
27 Al	1 45	4771.00 ppb	0.26	5000.00	90 - 110	110	95.4
39 K	1 45	5168.00 ppb	1.06	5000.00	90 - 110	110	103.4
44 Ca	2 45	5206.00 ppb	1.27	5000.00	90 - 110	110	104.1
47 Ti	1 45	205.00 ppb	0.71	200.00	90 - 110	110	102.5
51 V	1 45	202.80 ppb	0.59	200.00	90 - 110	110	101.4
52 Cr	1 45	212.70 ppb	0.90	200.00	90 - 110	110	106.4
55 Mn	1 45	209.40 ppb	1.30	200.00	90 - 110	110	104.7
56 Fe	1 72	5116.00 ppb	0.30	5000.00	90 - 110	110	102.3
59 Co	1 72	208.90 ppb	0.23	200.00	90 - 110	110	104.5
60 Ni	1 72	209.50 ppb	0.47	200.00	90 - 110	110	104.8
63 Cu	1 72	205.40 ppb	0.72	200.00	90 - 110	110	102.7
66 Zn	1 72	210.90 ppb	0.47	200.00	90 - 110	110	105.5
75 As	1 72	198.60 ppb	0.33	200.00	90 - 110	110	99.3
78 Se	1 72	199.70 ppb	0.39	200.00	90 - 110	110	99.9
88 Sr	2 115	210.70 ppb	1.50	200.00	90 - 110	110	105.4
95 Mo	2 115	204.60 ppb	1.47	200.00	90 - 110	110	102.3
107 Ag	2 115	199.90 ppb	1.79	200.00	90 - 110	110	100.0
111 Cd	2 115	199.60 ppb	1.22	200.00	90 - 110	110	99.8
118 Sn	2 115	211.40 ppb	1.55	200.00	90 - 110	110	105.7
121 Sb	2 115	170.90 ppb	1.38	200.00	90 - 110	110	85.5 Fail
137 Ba	2 115	195.80 ppb	1.53	200.00	90 - 110	110	97.9
205 Tl	2 209	204.10 ppb	1.27	200.00	90 - 110	110	102.1
208 Pb	2 209	199.00 ppb	1.34	200.00	90 - 110	110	99.5

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	385718.97	1.12	502320.09		76.8	60 -	120	
45 Sc	1	20193.63	0.16	21794.10		92.7	60 -	120	
45 Sc	2	551665.06	0.86	614766.56		89.7	60 -	120	
72 Ge	1	13477.16	0.81	14399.89		93.6	60 -	120	
115 In	2	723466.44	1.47	778296.38		93.0	60 -	120	
209 Bi	2	531732.31	1.93	567156.00		93.8	60 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\139LCVL.D\139LCVL.D#

Date Acquired:	Jul 19 2012 12:47 am	Sample Name:	LCVL5-120718
Acq. Method:	DHL_2.m	Misc Info:	LCVL6020A_W
Operator:	AR	Diln Factor:	1.00
Last Cal. Update:	Jul 18 2012 11:44 am		
Instrument:	ICPMS2		

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2	45	4.51 ppb	1.01	5.00	70 -	130 90.3
9 Be	2	45	0.88 ppb	4.46	1.00	70 -	130 88.0
11 B	2	45	46.21 ppb	1.43	5.00	70 -	130 924.2 Fail
23 Na	1	45	146.80 ppb	0.38	100.00	70 -	130 146.8 Fail
24 Mg	1	45	107.70 ppb	1.48	100.00	70 -	130 107.7
27 Al	1	45	99.63 ppb	3.42	100.00	70 -	130 99.6
39 K	1	45	111.70 ppb	0.95	100.00	70 -	130 111.7
44 Ca	2	45	115.00 ppb	1.35	100.00	70 -	130 115.0
47 Ti	1	45	5.31 ppb	6.22	5.00	70 -	130 106.3
51 V	1	45	1.09 ppb	1.31	1.00	70 -	130 109.1
52 Cr	1	45	5.44 ppb	1.83	5.00	70 -	130 108.7
55 Mn	1	45	5.49 ppb	2.95	5.00	70 -	130 109.7
56 Fe	1	72	127.70 ppb	0.33	100.00	70 -	130 127.7
59 Co	1	72	5.40 ppb	1.50	5.00	70 -	130 108.0
60 Ni	1	72	5.56 ppb	1.14	5.00	70 -	130 111.1
63 Cu	1	72	5.49 ppb	2.01	5.00	70 -	130 109.8
66 Zn	1	72	5.46 ppb	1.38	5.00	70 -	130 109.1
75 As	1	72	5.30 ppb	1.37	5.00	70 -	130 106.0
78 Se	1	72	5.13 ppb	5.11	5.00	70 -	130 102.6
88 Sr	2	115	5.19 ppb	1.71	5.00	70 -	130 103.7
95 Mo	2	115	5.44 ppb	2.83	5.00	70 -	130 108.8
107 Ag	2	115	2.06 ppb	3.34	2.00	70 -	130 102.8
111 Cd	2	115	1.03 ppb	6.10	1.00	70 -	130 102.7
118 Sn	2	115	5.31 ppb	2.65	5.00	70 -	130 106.3
121 Sb	2	115	2.30 ppb	0.57	2.00	70 -	130 114.8
137 Ba	2	115	4.89 ppb	2.07	5.00	70 -	130 97.8
205 Tl	2	209	1.30 ppb	2.01	1.00	70 -	130 130.2 Fail
208 Pb	2	209	0.96 ppb	1.13	1.00	70 -	130 96.4

ISTD Elements

Element		CPS Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	417279.75	1.13	502320.09	83.1	60 -	120	
45 Sc	1	19566.94	1.17	21794.10	89.8	60 -	120	
45 Sc	2	568331.56	0.94	614766.56	92.4	60 -	120	
72 Ge	1	12919.41	1.38	14399.89	89.7	60 -	120	
115 In	2	742555.88	1.57	778296.38	95.4	60 -	120	
209 Bi	2	553781.38	0.36	567156.00	97.6	60 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\141_CCB.D\141_CCB.D#

Date Acquired:	Jul 19 2012 12:59 am	Sample Name:	CCB5-120718
Acq. Method:	DHL_2.m	Misc Info:	CCB ICPMS_TW
Operator:	AR	Diln Factor:	1.00
Last Cal. Update:	Jul 18 2012 11:44 am		
Instrument:	ICPMS2		

QC Elements

Element		Conc.	RSD(%)	MDL S	MDL Aq	Flag
7 Li	2 45	-0.277 ppb	1.15	2.00	2.00	
9 Be	2 45	-0.024 ppb	17.75	0.10	0.30	
11 B	2 45	21.150 ppb	0.32	10.00	10.00	Failsoil
23 Na	1 45	40.560 ppb	0.63	50.00	#####	
24 Mg	1 45	3.566 ppb	12.39	50.00	#####	
27 Al	1 45	0.916 ppb	7.94	50.00	10.00	
39 K	1 45	9.396 ppb	2.66	50.00	#####	
44 Ca	2 45	9.109 ppb	6.91	50.00	#####	
47 Ti	1 45	0.006 ppb	99.97	4.00	3.00	
51 V	1 45	0.049 ppb	16.53	4.00	3.00	
52 Cr	1 45	-0.022 ppb	2.92	2.00	2.00	
55 Mn	1 45	0.075 ppb	32.03	2.00	3.00	
56 Fe	1 72	1.723 ppb	1.88	50.00	50.00	
59 Co	1 72	-0.004 ppb	10.83	2.00	3.00	
60 Ni	1 72	-0.028 ppb	12.56	2.00	3.00	
63 Cu	1 72	-0.162 ppb	7.18	2.00	2.00	
66 Zn	1 72	-0.238 ppb	9.74	4.00	2.00	
75 As	1 72	-0.002 ppb	9.32	2.00	2.00	
78 Se	1 72	0.205 ppb	13.93	0.60	2.00	
88 Sr	2 115	0.100 ppb	3.09	4.00	3.00	
95 Mo	2 115	0.143 ppb	11.58	2.00	2.00	
107 Ag	2 115	0.031 ppb	22.61	0.40	1.00	
111 Cd	2 115	-0.008 ppb	25.87	0.40	0.30	
118 Sn	2 115	0.047 ppb	9.75	4.00	3.00	
121 Sb	2 115	0.084 ppb	0.67	2.00	0.80	
137 Ba	2 115	0.013 ppb	9.27	2.00	3.00	
205 Tl	2 209	0.138 ppb	5.47	2.00	0.50	
208 Pb	2 209	-0.033 ppb	2.30	0.40	0.30	

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	415691.53	0.94	502320.09	82.8	60 -	120	
45 Sc	1	20045.90	1.45	21794.10	92.0	60 -	120	
45 Sc	2	556628.56	0.86	614766.56	90.5	60 -	120	
72 Ge	1	13797.62	0.63	14399.89	95.8	60 -	120	
115 In	2	736350.38	0.32	778296.38	94.6	60 -	120	
209 Bi	2	542247.13	1.05	567156.00	95.6	60 -	120	

ICP-MS3
For

DHL Work Order
1207088

ICP-MS3_120718A
For

DHL Work Order
1207088

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Project Number(s): ***SEE RUN LOG(S) FOR PROJECT, BATCH NUMBERS, COMMENTS.***		Run ID: ICP-MS3_120718A			
Batch Number(s):		SOP: Metals-ICP-MS-01			
Review Item		Yes	No	N/A	2nd Level Review
Data Folder Contents		X			X
1. Is the Prep Batch Report included? <i>Check the Prep Start/End Dates, Sample Amounts, Bottle #s</i>		X			X
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? <i>All standard/QC sample preparations shall be documented in LIMS</i>		X			X
3. Is the Run Log and instrument sequence included? <i>Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time</i>		X			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		X
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X		X
Review Item	Frequency	Limits	Pass	Fail	N/A
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		X
Note: 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		X
CCV	Every 10 samples	90-110%	X		X
CCB	Every 10 samples	< MDL (ALL + DoD)	X		X
Internal Standards	Every sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD) 30-150% (Other)	X		X
LLCV (6020A or project-specific requirement)	After ICAL, every 10 samples 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		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		X
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X		X
LCSD - RPD	Every LCS/LCSD	15 (H ₂ O) / 20 (Soil)	X		X
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%	X		X
MSD - RPD	Every MS/MSD	15 (H ₂ O) / 20 (Soil)	X		X
Dilution Test (SD) - RPD	Every Batch	10	X		X
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)	X		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		X

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	All deviations from the method and SOP that affect data quality			X	X
1. Are all non-conformances included and noted?					
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:

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
<input type="checkbox"/> CCV out of control ($\pm 10\%$)	<input type="checkbox"/> Carryover from previous run	<input type="checkbox"/> Reanalyze QC to confirm
<input type="checkbox"/> CCB out of control (> MDL / $>\frac{1}{2}$ RL)	<input type="checkbox"/> Cross contamination	<input type="checkbox"/> Recalibrate
<input type="checkbox"/> MB out of control (> MDL / $>\frac{1}{2}$ RL)	<input type="checkbox"/> Lab Artifact	<input type="checkbox"/> Reprep/Reanalyze sample
<input type="checkbox"/> LCS <input type="checkbox"/> LCSD out of control ($\pm 20\%$)	<input type="checkbox"/> Prep Spike error (describe)	<input type="checkbox"/> Reprep/Reanalyze Batch
<input type="checkbox"/> MS <input type="checkbox"/> MSD out of control ($\pm 20\%$)	<input type="checkbox"/> Matrix Effect	<input type="checkbox"/> Reanalyze Batch/Sample/QC
<input type="checkbox"/> RPD out of control for MS/MSD (15/25)	<input type="checkbox"/> High Levels of Target Metals	<input type="checkbox"/> Verify reagents are clean
<input type="checkbox"/> Internal Standard(s) out of control (see Method)	<input type="checkbox"/> Insufficient sample for QC	<input type="checkbox"/> Reanalyze sample to confirm
<input type="checkbox"/> No MS/MSD prepared - LCS/LCSD used instead	<input type="checkbox"/> Digestion/Prep Error	<input type="checkbox"/> Sample results ND w/ dilution
<input type="checkbox"/> Missing QC (other than MS/MSD)	<input type="checkbox"/> Analytical Error	<input type="checkbox"/> Client notified and approved
<input type="checkbox"/> QC sample(s) was mis-spiked	<input type="checkbox"/> Client Request	<input type="checkbox"/> Flag data / Case narrative
<input type="checkbox"/> ICSA/ICSAB missing or out of control ($\pm 20\%$)	<input type="checkbox"/> Other (describe below)	<input type="checkbox"/> Accept data
<input type="checkbox"/> LLCV out of control ($\pm 30\%$)		<input type="checkbox"/> Cal Std high and sample ND
<input type="checkbox"/> Other (describe below)		<input type="checkbox"/> Other (describe below)

General Comments and Impact on Data:

Analyst:

Second-Level Review:

Date of Completion: 7/19/2012

Reviewer Date Stamp:

REVIEWED

By Evelyn Ferrero at 2:39:13 PM, 7/19/2012

Run ID: ICP-MS3_120718A

Run No.: 61484

Analytical Run Date: 7/18/2012

InstrumentID: ICP-MS3

Analyst: Sara Wieland

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TW	CAL	R61484	7/18/2012 10:58:00 AM		
1/20 ppb STD.	1	ICPMS_TW	CAL	R61484	7/18/2012 11:04:00 AM		
10/200 ppb STD.	1	ICPMS_TW	CAL	R61484	7/18/2012 11:09:00 AM		
250/5000 ppb STD.	1	ICPMS_TW	CAL	R61484	7/18/2012 11:15:00 AM		
500/10000 ppb STD.	1	ICPMS_TW	CAL	R61484	7/18/2012 11:21:00 AM		
2000/25000 ppb STD.	1	ICPMS_TW	CAL	R61484	7/18/2012 11:26:00 AM		
ICSA-120718	1	ICPMS_TW	ICSA	R61484	7/18/2012 11:51:00 AM		
ICSAB-120718	1	ICPMS_TW	ICSB	R61484	7/18/2012 11:57:00 AM		
ICV1-120718	1	ICPMS_TW	ICV	R61484	7/18/2012 12:14:00 PM		
ICV1-120718	1	ICPMS_TW	ICV	R61484	7/18/2012 12:22:00 PM		
LCVL-120718	1	6020A_W	LCVL	R61484	7/18/2012 12:39:00 PM		
ICB1-120718	1	ICPMS_TW	ICB	R61484	7/18/2012 12:52:00 PM		
MB-52729	1	6020A_W	MBLK	52729	7/18/2012 12:58:00 PM		
LCS-52729	1	6020A_W	LCS	52729	7/18/2012 1:03:00 PM		
LCSD-52729	1	6020A_W	LCSD	52729	7/18/2012 1:09:00 PM		
1207101-08B	1	6020A_W	SAMP	52729	7/18/2012 1:26:00 PM		
1207101-08B SD	5	6020A_W	SD	52729	7/18/2012 1:31:00 PM		
1207101-01B	1	6020A_W	SAMP	52729	7/18/2012 1:37:00 PM		
1207101-02B	1	6020A_W	SAMP	52729	7/18/2012 1:43:00 PM		
1207101-03B	1	6020A_W	SAMP	52729	7/18/2012 1:48:00 PM		
1207101-04B	1	6020A_W	SAMP	52729	7/18/2012 1:54:00 PM		
1207101-06B	1	6020A_W	SAMP	52729	7/18/2012 1:59:00 PM		
1207101-07B	1	6020A_W	SAMP	52729	7/18/2012 2:05:00 PM		
1207101-10B	1	6020A_W	SAMP	52729	7/18/2012 2:11:00 PM		
1207101-08B PDS	1	6020A_W	PDS	52729	7/18/2012 2:22:00 PM		
1207101-08B MS	1	6020A_W	MS	52729	7/18/2012 2:27:00 PM		
1207101-08B MSD	1	6020A_W	MSD	52729	7/18/2012 2:33:00 PM		
CCV1-120718	1	ICPMS_TW	CCV	R61484	7/18/2012 2:39:00 PM		
LCVL1-120718	1	6020A_W	LCVL	R61484	7/18/2012 3:07:00 PM		
CCB1-120718	1	ICPMS_TW	CCB	R61484	7/18/2012 3:18:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CALB-120613	CAL BLANK		9/13/2012
MET-CCV-120702	ICPMS CCV 200/5000 PPB		10/2/2012
MET-H2CAL-1206	ICPMS High Cal2 2000ppb std 6		9/13/2012
MET-HCAL-12061	ICPMS High Cal 500ppb/10ppm		9/13/2012
MET-ICSA-120327	ICS-A Solution (Interference Che		3/22/2013
MET-ICSAB-120332	ICS-AB Solution (Interference Ch		3/22/2013
MET-ICV-120619	ICPMS ICV 100/2500 PPB		9/19/2012
MET-IS-120530	INTERNAL STANDARD 1 PPM		8/30/2012
MET-L2CAL-12061	ICPMS Low Cal2 1/20ppb std 2		9/13/2012
MET-LCAL-120613	ICPMS Low Cal 10/200ppb std 3		9/11/2012
MET-MCAL-12061	ICPMS Mid Cal 250/5000ppb std		9/13/2012
MET-PA-120501	ICPMS PA FACTOR SOLUTION		5/1/2013
MET-PDS-120629	250 PPM Naturals+Al+Fe PDS		9/29/2012
MET-PDS-120703-	10 PPM CUSTOM PDS SOLUTI		10/3/2012
MET-PDS-120703-	10 PPM Ag+Sb PDS		10/3/2012

Run ID:

ICP-MS3_120718A

Run No.: 61484

1207072-02E	1	6020A_W	SAMP	52729	7/18/2012 3:24:00 PM	
1207072-03B	1	6020A_W	SAMP	52729	7/18/2012 3:30:00 PM	
1207091-01E	1	6020A_W	SAMP	52729	7/18/2012 3:35:00 PM	
1207091-02E	1	6020A_W	SAMP	52729	7/18/2012 3:41:00 PM	
1207091-03E	1	6020A_W	SAMP	52729	7/18/2012 3:47:00 PM	
1207091-04E	1	6020A_W	SAMP	52729	7/18/2012 3:52:00 PM	
1207091-05E	1	6020A_W	SAMP	52729	7/18/2012 3:58:00 PM	
CCV2-120717	1	ICPMS_TW	CCV	R61484	7/18/2012 4:03:00 PM	
CCV2-120717	1	ICPMS_TW	CCV	R61484	7/18/2012 4:16:00 PM	
LCVL2-120717	1	6020A_W	LCVL	R61484	7/18/2012 4:39:00 PM	
CCB2-120717	1	ICPMS_TW	CCB	R61484	7/18/2012 4:56:00 PM	
MB-52758	1	6020A_W	MBLK	52758	7/18/2012 5:02:00 PM	
LCS-52758	1	6020A_W	LCS	52758	7/18/2012 5:08:00 PM	
LCSD-52758	1	6020A_W	LCSD	52758	7/18/2012 5:13:00 PM	
1207123-03B	1	6020A_W	SAMP	52758	7/18/2012 5:24:00 PM	
1207123-03B SD	5	6020A_W	SD	52758	7/18/2012 5:30:00 PM	
1207123-02E	1	6020A_W	SAMP	52758	7/18/2012 5:36:00 PM	
1207123-04E	1	6020A_W	SAMP	52758	7/18/2012 5:41:00 PM	
1207123-05B	1	6020A_W	SAMP	52758	7/18/2012 5:47:00 PM	
1207123-06E	1	6020A_W	SAMP	52758	7/18/2012 5:53:00 PM	
1207123-07E	1	6020A_W	SAMP	52758	7/18/2012 5:58:00 PM	
1207106-01E	1	6020A_W	SAMP	52758	7/18/2012 6:04:00 PM	
1207106-03E	1	6020A_W	SAMP	52758	7/18/2012 6:09:00 PM	
1207106-04E	1	6020A_W	SAMP	52758	7/18/2012 6:15:00 PM	
1207106-05E	1	6020A_W	SAMP	52758	7/18/2012 6:21:00 PM	
1207123-03B PDS	1	6020A_W	PDS	52758	7/18/2012 6:26:00 PM	
1207123-03B MS	1	6020A_W	MS	52758	7/18/2012 6:32:00 PM	
1207123-03B MSD	1	6020A_W	MSD	52758	7/18/2012 6:37:00 PM	
CCV3-120718	1	ICPMS_TW	CCV	R61484	7/18/2012 6:43:00 PM	
CCV3-120718	1	ICPMS_TW	CCV	R61484	7/18/2012 6:49:00 PM	
CCV3-120718	1	ICPMS_TW	CCV	R61484	7/18/2012 6:54:00 PM	
LCVL3-120718	1	6020A_W	LCVL	R61484	7/18/2012 7:17:00 PM	
CCB3-120718	1	ICPMS_TW	CCB	R61484	7/18/2012 7:28:00 PM	
1207106-06E	1	6020A_W	SAMP	52758	7/18/2012 7:34:00 PM	
1207106-07E	1	6020A_W	SAMP	52758	7/18/2012 7:39:00 PM	

Std ID	Std Name	Type	Exp. Date
MET-CALB-120613	CAL BLANK		9/13/2012
MET-CCV-120702	ICPMS CCV 200/5000 PPB		10/2/2012
MET-H2CAL-1206	ICPMS High Cal2 2000ppb std 6		9/13/2012
MET-HCAL-12061	ICPMS High Cal 500ppb/10ppm		9/13/2012
MET-ICSA-120327	ICS-A Solution (Interference Che		3/22/2013
MET-ICSAB-12032	ICS-AB Solution (Interference Ch		3/22/2013
MET-ICV-120619	ICPMS ICV 100/2500 PPB		9/19/2012
MET-IS-120530	INTERNAL STANDARD 1 PPM		8/30/2012
MET-L2CAL-12061	ICPMS Low Cal2 1/20ppb std 2		9/13/2012
MET-LCAL-120613	ICPMS Low Cal 10/200ppb std 3		9/11/2012
MET-MCAL-12061	ICPMS Mid Cal 250/5000ppb std		9/13/2012
MET-PA-120501	ICPMS PA FACTOR SOLUTION		5/1/2013
MET-PDS-120629	250 PPM Naturals+Al+Fe PDS		9/29/2012
MET-PDS-120703-	10 PPM CUSTOM PDS SOLUTI		10/3/2012
MET-PDS-120703-	10 PPM Ag+Sb PDS		10/3/2012

Run ID:

ICP-MS3_120718A**Run No.: 61484**

1207088-20A	1	6020A_W	SAMP	52758	7/18/2012 7:45:00 PM		
1207088-21A	1	6020A_W	SAMP	52758	7/18/2012 7:51:00 PM		
1207088-22A	1	6020A_W	SAMP	52758	7/18/2012 7:56:00 PM		
1207088-23A	1	ICPMS_TW	SAMP	52758	7/18/2012 8:02:00 PM		
CCV4-120718	1	ICPMS_TW	CCV	R61484	7/18/2012 8:07:00 PM		
CCV4-120718	1	ICPMS_TW	CCV	R61484	7/18/2012 8:13:00 PM		
LCVL4-120718	1	6020A_W	LCVL	R61484	7/18/2012 8:41:00 PM		
CCB4-120718	1	ICPMS_TW	CCB	R61484	7/18/2012 8:53:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CALB-120613	CAL BLANK		9/13/2012
MET-CCV-120702	ICPMS CCV 200/5000 PPB		10/2/2012
MET-H2CAL-1206	ICPMS High Cal2 2000ppb std 6		9/13/2012
MET-HCAL-12061	ICPMS High Cal 500ppb/10ppm		9/13/2012
MET-ICSA-120327	ICS-A Solution (Interference Che		3/22/2013
MET-ICSAB-12032	ICS-AB Solution (Interference Ch		3/22/2013
MET-ICV-120619	ICPMS ICV 100/2500 PPB		9/19/2012
MET-IS-120530	INTERNAL STANDARD 1 PPM		8/30/2012
MET-L2CAL-12061	ICPMS Low Cal2 1/20ppb std 2		9/13/2012
MET-LCAL-120613	ICPMS Low Cal 10/200ppb std 3		9/11/2012
MET-MCAL-12061	ICPMS Mid Cal 250/5000ppb std		9/13/2012
MET-PA-120501	ICPMS PA FACTOR SOLUTION		5/1/2013
MET-PDS-120629	250 PPM Naturals+Al+Fe PDS		9/29/2012
MET-PDS-120703-	10 PPM CUSTOM PDS SOLUTI		10/3/2012
MET-PDS-120703-	10 PPM Ag+Sb PDS		10/3/2012

	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\METHO DS\DHLL_3.m	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
3	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
4	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
5	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
6	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CalStd	2102		1/20 ppb STD.	CAL ICPMS_TW	Level 2				
7	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CalStd	2103		10/200 ppb STD.	CAL ICPMS_TW	Level 3				
8	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CalStd	2104		250/5000 ppb STD.	CAL ICPMS_TW	Level 4				
9	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CalStd	2105		500/10000 ppb STD.	CAL ICPMS_TW	Level 5				
10	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CalStd	2106		2000/25000 ppb STD.	CAL ICPMS_TW	Level 6				
11	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CCB	1101		BLANK	CAL ICPMS_TW	1.000				
12	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CCB	1102		BLANK	CAL ICPMS_TW	1.000				
13		Keyword		CALEND	End of CALIB						
14		Keyword		ICSBEG	Start of ICS						
15	C:\ICPCHEM\1\METHO DS\DHLL_3.m	ICS-A	2107		ICSA-120718	ICSAICPMS_TW	1.000				
16	C:\ICPCHEM\1\METHO DS\DHLL_3.m	ICS-AB	2108		ICSA-120718	ICSBICPMS_TW	1.000				
17	C:\ICPCHEM\1\METHO DS\DHLL_3.m	Blank	1102		BLANK	CCB ICPMS_TW	1.000				
18	C:\ICPCHEM\1\METHO DS\DHLL_3.m	Blank	1103		BLANK	CCB ICPMS_TW	1.000				
19		Keyword		ICSEND	End of ICS						
20		Keyword		SMPLBEG	Start of SMPL						
21	C:\ICPCHEM\1\METHO DS\DHLL_3.m	ICV	2109		ICV1-120718	ICV ICPMS_TW	1.000				
22	C:\ICPCHEM\1\METHO DS\DHLL_3.m	ICV	2111		ICV1-120718	ICV ICPMS_TW	1.000				
23	C:\ICPCHEM\1\METHO DS\DHLL_3.m	ICB	2101		ICB1-120718	ICB ICPMS_TW	1.000				
24	C:\ICPCHEM\1\METHO DS\DHLL_3.m	LCVL5	2110		LCVL-120718	LCVL6020A_W	1.000				
25	C:\ICPCHEM\1\METHO DS\DHLL_3.m	ICB	1104		ICB1-120718	ICB ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
26	C:\ICPCHEM\1\METHO DS\IDHL_3.m	ICB	1105		ICB1-120718	ICB ICPMS_TW	1.000				
27	C:\ICPCHEM\1\METHO DS\IDHL_3.m	PB W	2201		MB-52729	MBLK6020A_W	1.000				
28	C:\ICPCHEM\1\METHO DS\IDHL_3.m	LCS W	2202		LCS-52729	LCS 6020A_W	1.000				
29	C:\ICPCHEM\1\METHO DS\IDHL_3.m	LCS W	2203		LCSD-52729	LCSD6020A_W	1.000				
30	C:\ICPCHEM\1\METHO DS\IDHL_3.m	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
31	C:\ICPCHEM\1\METHO DS\IDHL_3.m	SampleS	2204		1207101-01B	SAMPICPMS_TS	1.000				
32	C:\ICPCHEM\1\METHO DS\IDHL_3.m	AllRef	2205		1207101-08B	SAMP6020A_W	1.000				
33	C:\ICPCHEM\1\METHO DS\IDHL_3.m	DT	2206		1207101-08B SD	SD 6020A_W	5.000				
34	C:\ICPCHEM\1\METHO DS\IDHL_3.m	SampleW	2207		1207101-01B	SAMP6020A_W	1.000				
35	C:\ICPCHEM\1\METHO DS\IDHL_3.m	SampleW	2208		1207101-02B	SAMP6020A_W	1.000				
36	C:\ICPCHEM\1\METHO DS\IDHL_3.m	SampleW	2209		1207101-03B	SAMP6020A_W	1.000				
37	C:\ICPCHEM\1\METHO DS\IDHL_3.m	SampleW	2210		1207101-04B	SAMP6020A_W	1.000				
38	C:\ICPCHEM\1\METHO DS\IDHL_3.m	SampleW	2211		1207101-06B	SAMP6020A_W	1.000				
39	C:\ICPCHEM\1\METHO DS\IDHL_3.m	SampleW	2212		1207101-07B	SAMP6020A_W	1.000				
40	C:\ICPCHEM\1\METHO DS\IDHL_3.m	SampleW	2301		1207101-10B	SAMP6020A_W	1.000				
41	C:\ICPCHEM\1\METHO DS\IDHL_3.m	SampleW	2302		1207117-01A	SAMPICPMS_TW	1.000				
42	C:\ICPCHEM\1\METHO DS\IDHL_3.m	PDS	2303		1207101-08B PDS	PDS 6020A_W	1.000				
43	C:\ICPCHEM\1\METHO DS\IDHL_3.m	MS_W	2304		1207101-08B MS	MS 6020A_W	1.000				
44	C:\ICPCHEM\1\METHO DS\IDHL_3.m	MS_W	2305		1207101-08B MSD	MSD 6020A_W	1.000				
45	C:\ICPCHEM\1\METHO DS\IDHL_3.m	CCV1	1307		CCV1-120718	CCV ICPMS_TW	1.000				
46	C:\ICPCHEM\1\METHO DS\IDHL_3.m	CCV1	2112		CCV1-120718	CCV ICPMS_TW	1.000				
47	C:\ICPCHEM\1\METHO DS\IDHL_3.m	CCB	1103		CCB1-120718	CCB ICPMS_TW	1.000				
48	C:\ICPCHEM\1\METHO DS\IDHL_3.m	CCB	1104		CCB1-120718	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\METHO DS\DHLL_3.m	LCVL5	2102		LCVL1-120718	LCVL6020A_W	1.000				
50	C:\ICPCHEM\1\METHO DS\DHLL_3.m	LCVL5	2110		LCVL1-120718	LCVL6020A_W	1.000				
51	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CCB	1104		CCB1-120718	CCB ICPMS_TW	1.000				
52	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CCB	1105		CCB1-120718	CCB ICPMS_TW	1.000				
53	C:\ICPCHEM\1\METHO DS\DHLL_3.m	SampleW	2306		1207072-02E	SAMP6020A_W	1.000				
54	C:\ICPCHEM\1\METHO DS\DHLL_3.m	SampleW	2307		1207072-03B	SAMP6020A_W	1.000				
55	C:\ICPCHEM\1\METHO DS\DHLL_3.m	SampleW	2308		1207091-01E	SAMP6020A_W	1.000				
56	C:\ICPCHEM\1\METHO DS\DHLL_3.m	SampleW	2309		1207091-02E	SAMP6020A_W	1.000				
57	C:\ICPCHEM\1\METHO DS\DHLL_3.m	SampleW	2310		1207091-03E	SAMP6020A_W	1.000				
58	C:\ICPCHEM\1\METHO DS\DHLL_3.m	SampleW	2311		1207091-04E	SAMP6020A_W	1.000				
59	C:\ICPCHEM\1\METHO DS\DHLL_3.m	SampleW	2312		1207091-05E	SAMP6020A_W	1.000				
60	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CCV1	1307		CCV2-120717	CCV ICPMS_TW	1.000				
61	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CCV1	2112		CCV2-120717	CCV ICPMS_TW	1.000				
62	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CCV1	1306		CCV2-120717	CCV ICPMS_TW	1.000				
63	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CCB	1102		CCB2-120717	CCB ICPMS_TW	1.000				
64	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CCB	1103		CCB2-120717	CCB ICPMS_TW	1.000				
65	C:\ICPCHEM\1\METHO DS\DHLL_3.m	LCVL5	2102		LCVL2-120717	LCVL6020A_W	1.000				
66	C:\ICPCHEM\1\METHO DS\DHLL_3.m	LCVL5	2110		LCVL2-120717	LCVL6020A_W	1.000				
67	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CCB	1104		CCB2-120717	CCB ICPMS_TW	1.000				
68	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CCB	1105		CCB2-120717	CCB ICPMS_TW	1.000				
69	C:\ICPCHEM\1\METHO DS\DHLL_3.m	PB W	2401		MB-52758	MBLK6020A_W	1.000				
70	C:\ICPCHEM\1\METHO DS\DHLL_3.m	LCS W	2402		LCS-52758	LCS 6020A_W	1.000				
71	C:\ICPCHEM\1\METHO DS\DHLL_3.m	LCS W	2403		LCSD-52758	LCSD6020A_W	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
72	C:\ICPCHEM\1\METHO DS\DHL_3.m	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
73	C:\ICPCHEM\1\METHO DS\DHL_3.m	AllRef	2404		1207123-03B	SAMP6020A_W	1.000				
74	C:\ICPCHEM\1\METHO DS\DHL_3.m	DT	2405		1207123-03B SD	SD_6020A_W	5.000				
75	C:\ICPCHEM\1\METHO DS\DHL_3.m	SampleW	2406		1207123-02E	SAMP6020A_W	1.000				
76	C:\ICPCHEM\1\METHO DS\DHL_3.m	SampleW	2407		1207123-04E	SAMP6020A_W	1.000				
77	C:\ICPCHEM\1\METHO DS\DHL_3.m	SampleW	2408		1207123-05B	SAMP6020A_W	1.000				
78	C:\ICPCHEM\1\METHO DS\DHL_3.m	SampleW	2409		1207123-06E	SAMP6020A_W	1.000				
79	C:\ICPCHEM\1\METHO DS\DHL_3.m	SampleW	2410		1207123-07E	SAMP6020A_W	1.000				
80	C:\ICPCHEM\1\METHO DS\DHL_3.m	SampleW	2411		1207106-01E	SAMP6020A_W	1.000				
81	C:\ICPCHEM\1\METHO DS\DHL_3.m	SampleW	2412		1207106-03E	SAMP6020A_W	1.000				
82	C:\ICPCHEM\1\METHO DS\DHL_3.m	SampleW	2501		1207106-04E	SAMP6020A_W	1.000				
83	C:\ICPCHEM\1\METHO DS\DHL_3.m	SampleW	2502		1207106-05E	SAMPICPMS_TW	1.000				
84	C:\ICPCHEM\1\METHO DS\DHL_3.m	PDS	2503		1207123-03B PDS	PDS_6020A_W	1.000				
85	C:\ICPCHEM\1\METHO DS\DHL_3.m	MS_W	2504		1207123-03B MS	MS_6020A_W	1.000				
86	C:\ICPCHEM\1\METHO DS\DHL_3.m	MS_W	2505		1207123-03B MSD	MSD_6020A_W	1.000				
87	C:\ICPCHEM\1\METHO DS\DHL_3.m	CCV1	1307		CCV3-120718	CCV ICPMS_TW	1.000				
88	C:\ICPCHEM\1\METHO DS\DHL_3.m	CCV1	2112		CCV3-120718	CCV ICPMS_TW	1.000				
89	C:\ICPCHEM\1\METHO DS\DHL_3.m	CCV1	1306		CCV3-120718	CCV ICPMS_TW	1.000				
90	C:\ICPCHEM\1\METHO DS\DHL_3.m	CCB	1102		CCB3-120718	CCB ICPMS_TW	1.000				
91	C:\ICPCHEM\1\METHO DS\DHL_3.m	CCB	1103		CCB3-120718	CCB ICPMS_TW	1.000				
92	C:\ICPCHEM\1\METHO DS\DHL_3.m	LCVL5	2102		LCVL3-120718	LCVL6020A_W	1.000				
93	C:\ICPCHEM\1\METHO DS\DHL_3.m	LCVL5	2110		LCVL3-120718	LCVL6020A_W	1.000				
94	C:\ICPCHEM\1\METHO DS\DHL_3.m	CCB	1104		CCB3-120718	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\METHO DS\DHLL_3.m	CCB	1105		CCB3-120718	CCB ICPMS_TW	1.000				
96	C:\ICPCHEM\1\METHO DS\DHLL_3.m	SampleW	2506		1207106-06E	SAMP6020A_W	1.000				
97	C:\ICPCHEM\1\METHO DS\DHLL_3.m	SampleW	2507		1207106-07E	SAMP6020A_W	1.000				
98	C:\ICPCHEM\1\METHO DS\DHLL_3.m	SampleW	2508		1207088-20A	SAMP6020A_W	1.000				
99	C:\ICPCHEM\1\METHO DS\DHLL_3.m	SampleW	2509		1207088-21A	SAMP6020A_W	1.000				
100	C:\ICPCHEM\1\METHO DS\DHLL_3.m	SampleW	2510		1207088-22A	SAMP6020A_W	1.000				
101	C:\ICPCHEM\1\METHO DS\DHLL_3.m	SampleW	2511		1207088-23A	SAMPICPMS_TW	1.000				
102	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CCV1	1307		CCV4-120718	CCV ICPMS_TW	1.000				
103	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CCV1	2112		CCV4-120718	CCV ICPMS_TW	1.000				
104	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CCV1	1306		CCV4-120718	CCV ICPMS_TW	1.000				
105	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CCB	1102		CCB4-120718	CCB ICPMS_TW	1.000				
106	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CCB	1103		CCB4-120718	CCB ICPMS_TW	1.000				
107	C:\ICPCHEM\1\METHO DS\DHLL_3.m	LCVL5	2102		LCVL4-120718	LCVL6020A_W	1.000				
108	C:\ICPCHEM\1\METHO DS\DHLL_3.m	LCVL5	2110		LCVL4-120718	LCVL6020A_W	1.000				
109	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CCB	1104		CCB4-120718	CCB ICPMS_TW	1.000				
110	C:\ICPCHEM\1\METHO DS\DHLL_3.m	CCB	1105		CCB4-120718	CCB ICPMS_TW	1.000				
111		Keyword		StandBy							
112		Keyword		SMPLEND	End of SMPL						
113		Keyword		End	End of Sequence						
114		Keyword		CCVBEG	Start of CCV						
115		Keyword		CCVEND	End of CCV						
116		Keyword		BLKBEG	Start of BLANK						
117		Keyword		BLKEND	End of BLANK						
118		Keyword		ERRBEG	Start of ERRTERM						
119		Keyword		ERREND	End of ERRTERM						

DHL Analytical**PREP BATCH REPORT**

Page: 1 of 1

Prep Start Date: 7/17/2012 9:05:34 AM

Digestion: Start: 7/17/2012 10:25:00 AM / Stop: 7/17/2012 3:45:00 PM

Prep End Date: 7/17/2012 3:55:48 PM

Prep Factor Units:

mL/mL

Prep Batch **52758** Prep Code: **3005A**Technician: **Lynette Mercado**

Equipment List	
Thermometer #64	
Hot Block #3	

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #		
1207088-20A	Aqueous		50	50	1.000	1	of	1
1207088-21A	Aqueous		50	50	1.000	1	of	1
1207088-22A	Aqueous		50	50	1.000	1	of	1
1207088-23A	Equip Blank		50	50	1.000	1	of	1
1207106-01E	Aqueous		50	50	1.000	1	of	1
1207106-03E	Aqueous		50	50	1.000	1	of	1
1207106-04E	Aqueous		50	50	1.000	1	of	1
1207106-05E	Aqueous		50	50	1.000	1	of	1
1207106-06E	Aqueous		50	50	1.000	1	of	1
1207106-07E	Aqueous		50	50	1.000	1	of	1
1207123-02E	Aqueous		50	50	1.000	1	of	1
1207123-03B	Aqueous		50	50	1.000	1	of	1
1207123-03B MS	Aqueous		50	50	1.000	of		
1207123-03B MSD	Aqueous		50	50	1.000	of		
1207123-03B PDS	Aqueous		50	50	1.000	of		
1207123-03B SD	Aqueous		50	50	1.000	of		
1207123-04E	Aqueous		50	50	1.000	1	of	1
1207123-05B	Aqueous		50	50	1.000	1	of	1
1207123-06E	Aqueous		50	50	1.000	1	of	1
1207123-07E	Aqueous		50	50	1.000	1	of	1
LCS-52758	Aqueous		50	50	1.000	of		
LCSD-52758	Aqueous		50	50	1.000	of		
MB-52758	Aqueous		50	50	1.000	of		

Number	Reagent Name	AmtAdd(mL)	Exp. Date
6526	Digestion Vessels		3/8/2013
6601	Nitric Acid (Trace Grade)	1	5/9/2013
6612	HCL (Trace Grade)	1	5/12/2013

Spk ID	Spike Name	SampType	AmtAdd(mL)	Exp. Date
MET-SPIKE-120618	2500 PPM NATURALS CAL	LCS/MS/MSD	0.1	7/18/2012
MET-SPIKE-120709-01	1000 PPM IRON PRIMARY STD	LCS/MS/MSD	0.25	7/9/2013
MET-SPIKE-120709-02	1000 PPM AL PRIMARY STD	LCS/MS/MSD	0.25	7/9/2013
MET-SPIKE-120710-1	50 PPM Custom+Li,Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	0.2	8/10/2012
MET-SPIKE-120710-2	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	8/10/2012

REVIEWED

By Evelyn Ferrero at 2:40:52 PM, 7/19/2012

Calibration Summary Report

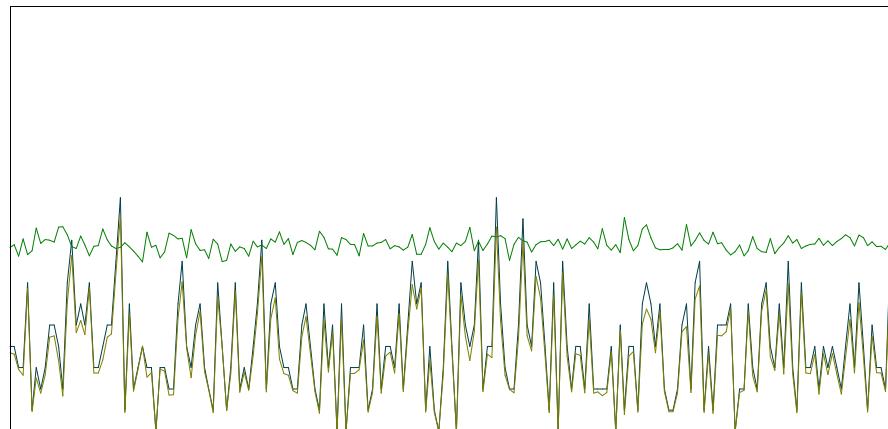
Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3.C
Last Update: Jul 18 2012 11:30 am

Standard	Date Acquired	File
BLANK STD 1	Jul 18 2012 10:58 am	c:\icpcchem\1\data\12g18k01.b\004calb.d\
1/20 ppb STD.	Jul 18 2012 11:04 am	c:\icpcchem\1\data\12g18k01.b\005cals.d\
10/200 ppb STD.	Jul 18 2012 11:09 am	c:\icpcchem\1\data\12g18k01.b\006cals.d\
250/5000 ppb STD.	Jul 18 2012 11:15 am	c:\icpcchem\1\data\12g18k01.b\007cals.d\
500/10000 ppb STD.	Jul 18 2012 11:21 am	c:\icpcchem\1\data\12g18k01.b\008cals.d\
2000/25000 ppb STD.	Jul 18 2012 11:26 am	c:\icpcchem\1\data\12g18k01.b\009cals.d\

Element Name	Cal Type	Corr Coef	Coef A	Coef B
Li	Y=aX+[blank]	0.9995	1.495	7.836
Be	Y=aX+[blank]	1.0000	0.4531	0.05071
B	Y=aX+[blank]	0.9995	0.2781	2.673
Na	Y=aX+[blank]	0.9999	2.136	319.7
Mg	Y=aX+[blank]	1.0000	0.9734	1.174
Al	Y=aX+[blank]	0.9999	0.2703	2.186
K	Y=aX+[blank]	1.0000	0.4994	43.65
Ca	Y=aX+[blank]	0.9999	0.05756	1.998
Ti	Y=aX+[blank]	0.9995	0.1965	0.01559
V	Y=aX+[blank]	1.0000	8.475	0.7198
Cr	Y=aX+[blank]	1.0000	10.87	2.358
Mn	Y=aX+[blank]	1.0000	4.085	0.3678
Fe	Y=aX+[blank]	0.9998	11.61	25.1
Co	Y=aX+[blank]	1.0000	31.83	1.513
Ni	Y=aX+[blank]	1.0000	9.252	2.106
Cu	Y=aX+[blank]	1.0000	26.15	6.291
Zn	Y=aX+[blank]	1.0000	2.658	1.866
As	Y=aX+[blank]	1.0000	1.56	0.2889
Se	Y=aX+[blank]	0.9999	0.07185	0.06306
Sr	Y=aX+[blank]	0.9999	2.321	0.1544
Mo	Y=aX+[blank]	1.0000	0.4134	0.06619
Ag	Y=aX+[blank]	1.0000	1.053	0.01456
Cd	Y=aX+[blank]	1.0000	0.2112	0.01597
Sn	Y=aX+[blank]	1.0000	0.6012	0.1825
Sb	Y=aX+[blank]	1.0000	0.809	0.1134
Ba	Y=aX+[blank]	1.0000	0.3031	0.02268
Tl	Y=aX+[blank]	0.9999	2.11	0.2949
Pb	Y=aX+[blank]	1.0000	2.967	0.1646

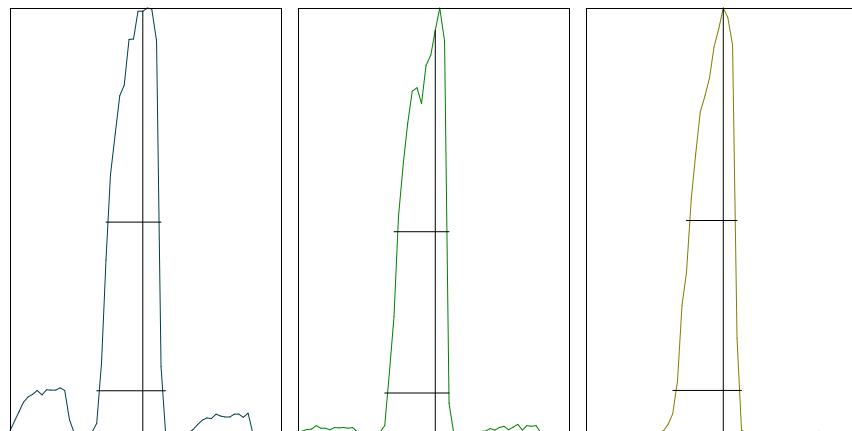
Tune Report

Tune File : He.U
Comment :



Integration Time: 0.1000 sec
Sampling Period: 0.2000 sec
n: 200
Oxide: 156/140 0.156%
Doubly Charged: 70/140 1.063%

m/z	Range	Count	Mean	RSD%	Background
51	20	8.0	4.0	57.47	0.20
59	5,000	2225.0	2205.9	4.04	0.30
51/59	1	0.360%	0.181%	57.28	



m/z: 59 89 205
Height: 2,198 1,059 5,583
Axis: 59.00 89.05 205.05
W-50%: 0.60 0.60 0.55
W-10%: 0.7500 0.700 0.7500

Integration Time: 0.1000 sec
Acquisition Time: 22.5600 sec

Y axis : Linear

Tune Report

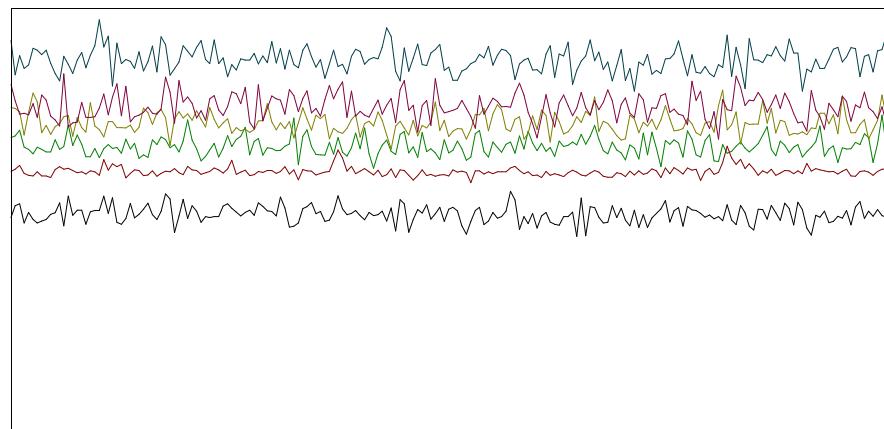
Tune File : He.U
Comment :

Tuning Parameters

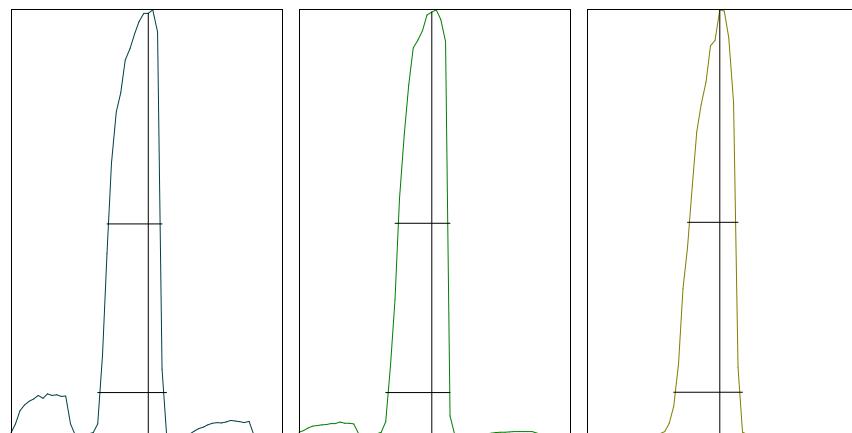
====Plasma Condition====			====Ion Lenses====			====Q-Pole Parameters====		
RF Power	:	1550 W	Extract 1	:	0 V	AMU Gain	:	121
RF Matching	:	1.7 V	Extract 2	:	-125 V	AMU Offset	:	122
Smpl Depth	:	8 mm	Omega Bias-ce	:	-24 V	Axis Gain	:	0.9995
Torch-H	:	-0.1 mm	Omega Lens-ce	:	1.2 V	Axis Offset	:	-0.07
Torch-V	:	0.1 mm	Cell Entrance	:	-30 V	QP Bias	:	-14 V
Carrier Gas	:	1.1 L/min	QP Focus	:	-5 V	====Detector Parameters====		
Makeup Gas	:	0 L/min	Cell Exit	:	-40 V	Discriminator	:	8 mV
Optional Gas	:	--- %	====Octopole Parameters====			Analog HV	:	1860 V
Nebulizer Pump	:	0.1 rps	OctP RF	:	200 V	Pulse HV	:	1720 V
Sample Pump	:	--- rps	OctP Bias	:	-16 V			
S/C Temp	:	2 degC						
====Reaction Cell====								
Reaction Mode	:	ON	He Gas	:	4.6 mL/min	Optional Gas	:	--- %
H2 Gas	:	0 mL/min						

Tune Report

Tune File : nogas.u
Comment :



m/z	Range	Count	Mean	RSD%	Background
7	10,000	8807.0	8790.8	3.27	2.00
89	20,000	13068.0	13517.1	3.23	2.70
205	10,000	7375.0	7302.7	3.36	8.40
156/140	1	0.509%	0.529%	13.42	
70/140	2	1.321%	1.316%	10.26	
63	2,000	1524.0	1538.2	3.87	1.90
11	5,000	2571.0	2577.4	3.93	1.90
23	100,000	61497.0	61631.2	1.74	1.50



Y axis : Linear

Tune Report

Tune File : nogas.u
Comment :

Tuning Parameters

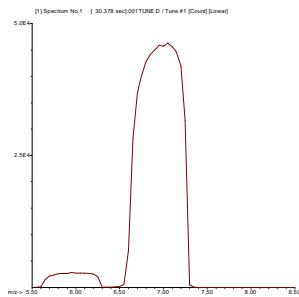
====Plasma Condition====			====Ion Lenses====			====Q-Pole Parameters====		
RF Power	:	1550 W	Extract 1	:	0 V	AMU Gain	:	121
RF Matching	:	1.7 V	Extract 2	:	-125 V	AMU Offset	:	122
Smpl Depth	:	8 mm	Omega Bias-ce	:	-24 V	Axis Gain	:	0.9995
Torch-H	:	-0.1 mm	Omega Lens-ce	:	1.2 V	Axis Offset	:	-0.07
Torch-V	:	0.1 mm	Cell Entrance	:	-30 V	QP Bias	:	-4 V
Carrier Gas	:	1.1 L/min	QP Focus	:	2 V	====Detector Parameters====		
Makeup Gas	:	0 L/min	Cell Exit	:	-30 V	Discriminator	:	8 mV
Optional Gas	:	--- %	====Octopole Parameters====			Analog HV	:	1860 V
Nebulizer Pump	:	0.1 rps	OctP RF	:	200 V	Pulse HV	:	1720 V
Sample Pump	:	--- rps	OctP Bias	:	-7 V			
S/C Temp	:	2 degC						
====Reaction Cell====								
Reaction Mode	:	OFF	He Gas	:	0 mL/min	Optional Gas	:	--- %
H2 Gas	:	0 mL/min						

6020 QC Tune Report

Data File: C:\ICPCHEM\1\DATA\12G18k00.B\001TUNE.D
 Date Acquired: Jul 18 2012 10:19 am
 Acq. Method: TN6020.M
 Operator: AR
 Sample Name: TUNE CHECK
 Misc Info:
 Vial Number: 1301
 Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

Element	Actual	Required	Flag
7 Li	1.28	5.00	
59 Co	0.68	5.00	
115 In	0.58	5.00	
205 Tl	0.57	5.00	



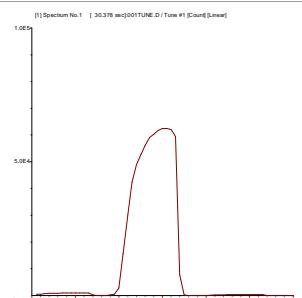
7 Li

Mass Calib.

Actual: 7.00
 Required: 6.90 - 7.10
 Flag:

Peak Width

Actual: 0.65
 Required: 0.90
 Flag:



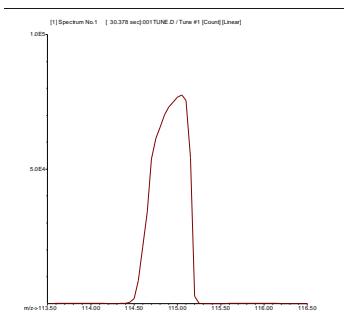
59 Co

Mass Calib.

Actual: 59.00
 Required: 58.90 - 59.10
 Flag:

Peak Width

Actual: 0.60
 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:

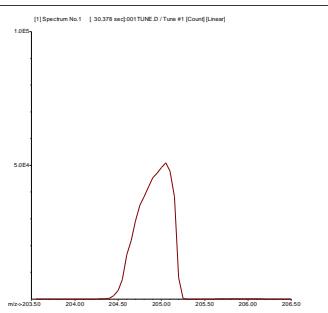
205 Tl

Mass Calib.

Actual: 205.00
Required: 204.90 - 205.10
Flag:

Peak Width

Actual: 0.55
Required: 0.90
Flag:



P/A Factor Tuning Report

Acquired:Jul 18 2012 10:08 am

Mass[amu]	Element	P/A Factor
6	Li	0.067368
7	Li	Sensitivity too low
9	Be	0.074883
11	B	Sensitivity too low
23	Na	0.084845
24	Mg	0.088087
27	Al	0.090191
39	K	0.088561
44	Ca	Sensitivity too low
45	Sc	0.090469
47	Ti	Sensitivity too low
51	V	0.093245
52	Cr	0.096023
55	Mn	0.097696
56	Fe	0.089411
59	Co	0.102176
60	Ni	0.104224
63	Cu	0.106983
66	Zn	0.106327
72	Ge	0.105042
75	As	0.103991
78	Se	Sensitivity too low
88	Sr	0.104452
95	Mo	Sensitivity too low
106	(Cd)	0.110757
107	Ag	Sensitivity too low
108	(Cd)	0.111936
111	Cd	0.112488
115	In	0.111361
118	Sn	0.110969
121	Sb	0.110458
137	Ba	Sensitivity too low
205	Tl	0.121117
206	(Pb)	0.120575
207	(Pb)	0.120994
208	Pb	0.119901
209	Bi	0.119609
238		0.117829

====Detector Parameters=====

Discriminator: 8.0 mV

Analog HV: 1860 V

Pulse HV: 1720 V

Calibration Blank QC Report

Acq. Method: DHL_3.m Sample Name: BLANK STD 1
 Operator: AR Instrument: ICPMS3
 Last Cal. Update: Jul 18 2012 11:01 am
 Date Acquired: Jul 18 2012 10:58 am

QC&ISTD Elements

Element		CPS Mean	SD	RSD(%)
6	Li	2	---	301176.19 P
7	Li	2	45	22300.48 P
9	Be	2	45	144.45 P
11	B	2	45	7607.06 P
23	Na	1	45	18201.68 P
24	Mg	1	45	66.67 P
27	Al	1	45	124.45 P
39	K	1	45	2483.69 P
44	Ca	2	45	5683.75 P
45	Sc	1	---	11387.52 P
45	Sc	2	---	569049.13 P
47	Ti	1	45	0.89 P
51	V	1	45	40.89 P
52	Cr	1	45	134.23 P
55	Mn	1	45	20.89 P
56	Fe	1	72	884.94 P
59	Co	1	72	53.33 P
60	Ni	1	72	74.22 P
63	Cu	1	72	221.78 P
66	Zn	1	72	65.78 P
72	Ge	1	---	7050.31 P
75	As	1	72	10.19 P
78	Se	1	72	2.22 P
88	Sr	2	###	416.69 P
95	Mo	2	###	177.79 P
107	Ag	2	###	38.89 P
111	Cd	2	###	42.72 P
115	In	2	---	536581.81 P
118	Sn	2	###	490.03 P
121	Sb	2	###	304.46 P
137	Ba	2	###	61.11 P
205	Tl	2	###	612.26 P
208	Pb	2	###	344.46 P
209	Bi	2	---	414466.09 P

Calibration Standard QC Report

Acq. Method: DHL_3.m Sample Name: 1/20 ppb STD.
 Operator: AR Instrument: ICPMS3
 Date Acquired: Jul 18 2012 11:04 am
 Last Cal. Update: Jul 18 2012 11:01 am

QC&ISTD Elements

Element	CPS	Mean	SD	RSD (%)	Flag
6 Li 2 ---	302379.69	P	9310.00	3.08	
7 Li 2 45	26357.29	P	1219.00	4.62	
9 Be 2 45	1273.45	P	95.06	7.46	
11 B 2 45	8614.40	P	177.70	2.06	
23 Na 1 45	20174.73	P	280.80	1.39	
24 Mg 1 45	1189.00	P	83.30	7.01	
27 Al 1 45	403.57	P	28.26	7.00	
39 K 1 45	3157.21	P	95.42	3.02	
44 Ca 2 45	8802.38	P	232.60	2.64	
45 Sc 1 ---	11373.94	P	285.60	2.51	
45 Sc 2 ---	572056.50	P	24560.00	4.29	
47 Ti 1 45	12.89	P	4.68	36.33	
51 V 1 45	489.80	P	22.40	4.57	
52 Cr 1 45	752.04	P	42.86	5.70	
55 Mn 1 45	236.90	P	8.47	3.57	
56 Fe 1 72	9587.88	P	208.00	2.17	
59 Co 1 72	1120.96	P	61.72	5.51	
60 Ni 1 72	372.46	P	13.62	3.66	
63 Cu 1 72	1124.51	P	35.69	3.17	
66 Zn 1 72	155.56	P	13.36	8.59	
72 Ge 1 ---	7037.18	P	170.20	2.42	
75 As 1 72	58.04	P	2.54	4.38	
78 Se 1 72	4.11	P	0.62	15.05	
88 Sr 2 115	6160.73	P	78.24	1.27	
95 Mo 2 115	1140.10	P	84.14	7.38	
107 Ag 2 115	2682.64	P	157.00	5.85	
111 Cd 2 115	550.15	P	78.11	14.20	
115 In 2 ---	540960.00	P	25630.00	4.74	
118 Sn 2 115	1910.24	P	110.20	5.77	
121 Sb 2 115	2244.75	P	115.50	5.15	
137 Ba 2 115	761.17	P	131.70	17.30	
205 Tl 2 209	4574.46	P	197.60	4.32	
208 Pb 2 209	6048.69	P	369.30	6.11	
209 Bi 2 ---	414446.91	P	25050.00	6.04	

ISTD Elements

Element	CPS	Mean	RSD (%)	Ref Value	Rec (%)	QC Range (%)	Flag
6 Li 2	302379.75	3.08	301176.25	100.4	70 -	120	
45 Sc 1	11373.94	2.51	11387.52	99.9	70 -	120	
45 Sc 2	572056.44	4.29	569049.13	100.5	70 -	120	
72 Ge 1	7037.18	2.42	7050.31	99.8	70 -	120	
115 In 2	540960.06	4.74	536581.75	100.8	70 -	120	
209 Bi 2	414446.91	6.04	414466.09	100.0	70 -	120	

Calibration Standard QC Report

Acq. Method: DHL_3.m Sample Name: 10/200 ppb STD.
 Operator: AR Instrument: ICPMS3
 Date Acquired: Jul 18 2012 11:09 am
 Last Cal. Update: Jul 18 2012 11:07 am

QC&ISTD Elements

Element	CPS	Mean	SD	RSD (%)	Flag
6 Li 2 ---	292129.81 P	11370.00	3.89		
7 Li 2 45	63642.86 P	2069.00	3.25	Fail	
9 Be 2 45	12761.38 P	283.70	2.22	Fail	
11 B 2 45	14565.73 P	518.50	3.56	Fail	
23 Na 1 45	42593.51 P	425.60	1.00	Fail	
24 Mg 1 45	11207.69 P	243.00	2.17		
27 Al 1 45	3269.37 P	82.40	2.52	Fail	
39 K 1 45	8210.82 P	161.20	1.96	Fail	
44 Ca 2 45	37983.83 P	1345.00	3.54	Fail	
45 Sc 1 ---	11474.25 P	149.90	1.31		
45 Sc 2 ---	559256.19 P	17880.00	3.20		
47 Ti 1 45	128.45 P	17.35	13.51		
51 V 1 45	4715.64 P	56.79	1.20		
52 Cr 1 45	6332.38 P	131.60	2.08	Fail	
55 Mn 1 45	2395.39 P	120.90	5.05		
56 Fe 1 72	92250.25 P	2070.00	2.24		
59 Co 1 72	11214.62 P	104.20	0.93		
60 Ni 1 72	3337.40 P	42.60	1.28		
63 Cu 1 72	9442.43 P	127.40	1.35		
66 Zn 1 72	992.06 P	45.16	4.55	Fail	
72 Ge 1 ---	6935.34 P	90.82	1.31		
75 As 1 72	527.86 P	8.18	1.55		
78 Se 1 72	25.52 P	4.07	15.97	Fail	
88 Sr 2 115	60209.80 P	1520.00	2.52	Fail	
95 Mo 2 115	10828.62 P	413.00	3.81	Fail	
107 Ag 2 115	27337.69 P	795.00	2.91	Fail	
111 Cd 2 115	5340.76 P	435.30	8.15	Fail	
115 In 2 ---	529595.69 P	21310.00	4.02		
118 Sn 2 115	16202.77 P	411.00	2.54	Fail	
121 Sb 2 115	20937.00 P	1219.00	5.82	Fail	
137 Ba 2 115	7749.53 P	183.70	2.37	Fail	
205 Tl 2 209	41741.35 P	2027.00	4.86	Fail	
208 Pb 2 209	59669.68 P	3634.00	6.09	Fail	
209 Bi 2 ---	405871.91 P	22420.00	5.52		

ISTD Elements

Element	CPS	Mean	RSD (%)	Ref Value	Rec (%)	QC Range (%)	Flag
6 Li 2	292129.75	3.89	301176.25	97.0	70 -	120	
45 Sc 1	11474.25	1.31	11387.52	100.8	70 -	120	
45 Sc 2	559256.25	3.20	569049.13	98.3	70 -	120	
72 Ge 1	6935.34	1.31	7050.31	98.4	70 -	120	
115 In 2	529595.75	4.02	536581.75	98.7	70 -	120	
209 Bi 2	405871.94	5.52	414466.09	97.9	70 -	120	

Calibration Standard QC Report

Acq. Method: DHL_3.m Sample Name: 250/5000 ppb STD.
 Operator: AR Instrument: ICPMS3
 Date Acquired: Jul 18 2012 11:15 am
 Last Cal. Update: Jul 18 2012 11:13 am

QC&ISTD Elements

Element	CPS	Mean	SD	RSD (%)	Flag
6 Li 2 ---	236820.50	P	10580.00	4.47	
7 Li 2 45	1103368.00	A	43530.00	3.95	Fail
9 Be 2 45	320977.31	P	11690.00	3.64	Fail
11 B 2 45	185432.20	P	7569.00	4.08	Fail
23 Na 1 45	633322.19	P	1866.00	0.29	Fail
24 Mg 1 45	277492.69	P	1893.00	0.68	
27 Al 1 45	77051.03	P	836.70	1.09	
39 K 1 45	144944.41	P	1557.00	1.07	
44 Ca 2 45	831893.50	M	36300.00	4.36	Fail
45 Sc 1 ---	11112.59	P	59.33	0.53	
45 Sc 2 ---	549854.38	P	18690.00	3.40	
47 Ti 1 45	2871.05	P	21.95	0.76	
51 V 1 45	119489.80	P	1086.00	0.91	
52 Cr 1 45	154605.00	P	1283.00	0.83	
55 Mn 1 45	58427.86	P	548.90	0.94	
56 Fe 1 72	2016247.00	A	15610.00	0.77	
59 Co 1 72	272226.00	P	1022.00	0.38	
60 Ni 1 72	78663.02	P	555.10	0.71	
63 Cu 1 72	223387.70	P	1675.00	0.75	
66 Zn 1 72	23048.07	P	69.39	0.30	
72 Ge 1 ---	6708.55	P	67.73	1.01	
75 As 1 72	13055.15	P	45.61	0.35	
78 Se 1 72	618.05	P	8.78	1.42	
88 Sr 2 115	1560197.00	A	66530.00	4.26	
95 Mo 2 115	270713.09	P	11800.00	4.36	Fail
107 Ag 2 115	682479.69	P	31710.00	4.65	
111 Cd 2 115	135506.30	P	5995.00	4.42	
115 In 2 ---	524463.88	P	20630.00	3.93	
118 Sn 2 115	397334.81	P	18250.00	4.59	Fail
121 Sb 2 115	528487.69	P	24580.00	4.65	Fail
137 Ba 2 115	194640.30	P	8258.00	4.24	
205 Tl 2 209	1070725.00	M	64330.00	6.01	Fail
208 Pb 2 209	1482231.00	P	69440.00	4.68	
209 Bi 2 ---	394954.41	P	23140.00	5.86	

ISTD Elements

Element	CPS	Mean	RSD (%)	Ref Value	Rec (%)	QC Range (%)	Flag
6 Li 2	236820.55	4.47	301176.25	78.6	70 -	120	
45 Sc 1	11112.59	0.53	11387.52	97.6	70 -	120	
45 Sc 2	549854.44	3.40	569049.13	96.6	70 -	120	
72 Ge 1	6708.55	1.01	7050.31	95.2	70 -	120	
115 In 2	524463.94	3.93	536581.75	97.7	70 -	120	
209 Bi 2	394954.41	5.86	414466.09	95.3	70 -	120	

Calibration Standard QC Report

Acq. Method: DHL_3.m Sample Name: 500/10000 ppb STD.
 Operator: AR Instrument: ICPMS3
 Date Acquired: Jul 18 2012 11:21 am
 Last Cal. Update: Jul 18 2012 11:18 am

QC&ISTD Elements

Element	CPS	Mean	SD	RSD (%)	Flag
6 Li 2 ---	182999.59	P	11160.00	6.10	ISFail
7 Li 2 45	2017977.00	A	78650.00	3.90	Fail
9 Be 2 45	605505.19	P	26330.00	4.35	
11 B 2 45	342001.31	P	15650.00	4.58	Fail
23 Na 1 45	1195792.00	A	19530.00	1.63	
24 Mg 1 45	523408.00	P	4222.00	0.81	
27 Al 1 45	146373.00	P	1032.00	0.71	
39 K 1 45	273080.41	P	4225.00	1.55	
44 Ca 2 45	1581641.00	A	57970.00	3.67	Fail
45 Sc 1 ---	10887.51	P	83.14	0.76	
45 Sc 2 ---	541377.88	P	18390.00	3.40	
47 Ti 1 45	5280.33	P	24.69	0.47	
51 V 1 45	227286.59	P	2801.00	1.23	
52 Cr 1 45	293853.81	P	2764.00	0.94	
55 Mn 1 45	111072.90	P	2176.00	1.96	
56 Fe 1 72	3768865.00	A	58260.00	1.55	
59 Co 1 72	517484.31	P	5392.00	1.04	
60 Ni 1 72	150631.91	P	1384.00	0.92	
63 Cu 1 72	425887.81	P	3902.00	0.92	
66 Zn 1 72	43527.49	P	90.20	0.21	
72 Ge 1 ---	6549.58	P	118.40	1.81	
75 As 1 72	24951.49	P	216.30	0.87	
78 Se 1 72	1171.80	P	6.51	0.56	
88 Sr 2 115	2991466.00	A	110400.00	3.69	
95 Mo 2 115	536680.69	P	23630.00	4.40	
107 Ag 2 115	1370311.00	A	68280.00	4.98	
111 Cd 2 115	267462.81	P	11930.00	4.46	
115 In 2 ---	518801.91	P	18660.00	3.60	
118 Sn 2 115	778879.88	P	29110.00	3.74	Fail
121 Sb 2 115	1051033.00	M	52210.00	4.97	
137 Ba 2 115	382321.00	P	15240.00	3.99	
205 Tl 2 209	2154295.00	A	117900.00	5.47	
208 Pb 2 209	2951948.00	A	142700.00	4.83	
209 Bi 2 ---	392810.09	P	20570.00	5.24	

ISTD Elements

Element	CPS	Mean	RSD (%)	Ref Value	Rec (%)	QC Range (%)	Flag
6 Li 2	182999.56	6.10	301176.25	60.8	70 -	120	ISFail
45 Sc 1	10887.51	0.76	11387.52	95.6	70 -	120	
45 Sc 2	541377.88	3.40	569049.13	95.1	70 -	120	
72 Ge 1	6549.58	1.81	7050.31	92.9	70 -	120	
115 In 2	518801.91	3.60	536581.75	96.7	70 -	120	
209 Bi 2	392810.13	5.24	414466.09	94.8	70 -	120	

Calibration Standard QC Report

Acq. Method: DHL_3.m Sample Name: 2000/25000 ppb STD.
 Operator: AR Instrument: ICPMS3
 Date Acquired: Jul 18 2012 11:26 am
 Last Cal. Update: Jul 18 2012 11:24 am

QC&ISTD Elements

Element	CPS	Mean	SD	RSD (%)	Flag
6 Li 2 ---	-62262.22	M	21200.00	34.05	ISFail
7 Li 2 45	8259488.00	A	175900.00	2.13	Fail
9 Be 2 45	2570829.00	A	21350.00	0.83	
11 B 2 45	1597792.00	A	20330.00	1.27	Fail
23 Na 1 45	2946196.00	A	28710.00	0.97	
24 Mg 1 45	1340987.00	A	12980.00	0.97	
27 Al 1 45	171.12	P	12.67	7.40	Fail
39 K 1 45	689342.38	P	14190.00	2.06	
44 Ca 2 45	4074306.00	A	70380.00	1.73	Fail
45 Sc 1 ---	11011.83	P	157.60	1.43	
45 Sc 2 ---	568044.19	P	26900.00	4.74	
47 Ti 1 45	21681.00	P	299.70	1.38	
51 V 1 45	933871.31	A	22230.00	2.38	
52 Cr 1 45	1197529.00	A	22750.00	1.90	
55 Mn 1 45	449626.59	P	6484.00	1.44	
56 Fe 1 72	3946.04	P	378.60	9.59	Fail
59 Co 1 72	2084977.00	A	28680.00	1.38	
60 Ni 1 72	606000.81	P	3488.00	0.58	
63 Cu 1 72	1713038.00	A	16520.00	0.96	
66 Zn 1 72	174073.59	P	2347.00	1.35	
72 Ge 1 ---	6551.35	P	157.80	2.41	
75 As 1 72	102294.30	P	1153.00	1.13	
78 Se 1 72	4764.04	P	76.53	1.61	
88 Sr 2 115	12227160.00	A	247100.00	2.02	
95 Mo 2 115	2364925.00	A	31390.00	1.33	
107 Ag 2 115	596.71	P	63.52	10.65	Fail
111 Cd 2 115	1134676.00	A	27970.00	2.47	
115 In 2 ---	536957.31	P	27310.00	5.09	
118 Sn 2 115	3220192.00	A	79340.00	2.46	
121 Sb 2 115	1235.68	P	85.93	6.95	Fail
137 Ba 2 115	1629250.00	A	42770.00	2.63	
205 Tl 2 209	8546794.00	A	272200.00	3.18	
208 Pb 2 209	12037340.00	A	340700.00	2.83	
209 Bi 2 ---	406612.41	P	20650.00	5.08	

ISTD Elements

Element	CPS	Mean	RSD (%)	Ref Value	Rec (%)	QC Range (%)	Flag
6 Li 2	-62262.23	34.05	301176.25	-20.7	70 -	120	ISFail
45 Sc 1	11011.83	1.43	11387.52	96.7	70 -	120	
45 Sc 2	568044.25	4.74	569049.13	99.8	70 -	120	
72 Ge 1	6551.35	2.41	7050.31	92.9	70 -	120	
115 In 2	536957.31	5.09	536581.75	100.1	70 -	120	
209 Bi 2	406612.38	5.08	414466.09	98.1	70 -	120	

ICSA QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\012ICSA.D\012ICSA.D#

Date Acquired: Jul 18 2012 11:51 am Sample Name: **ICSA-120718**
 Acq. Method: DHL_3.m Misc Info: ICSAICPMS_TW
 Operator: AR Diln Factor: 1.00
 Last Cal. Update: Jul 18 2012 11:29 am
 Instrument: ICPMS3

QC Elements

Element		Conc.	RSD(%)	RL S	RL Aq	Flag
7 Li	2	45 -0.502 ppb	4.33	8.00	5.00	
9 Be	2	45 0.098 ppb	23.67	0.32	0.80	
11 B	2	45 13.940 ppb	4.15	30.00	30.00	
23 Na	1	45 93140.000 ppb	2.10	#####	#####	
24 Mg	1	45 93270.000 ppb	1.37	#####	#####	
27 Al	1	45 91630.000 ppb	2.43	#####	#####	
39 K	1	45 96660.000 ppb	2.93	#####	#####	
44 Ca	2	45 95670.000 ppb	3.76	#####	#####	
47 Ti	1	45 2094.000 ppb	2.22	10.00	10.00	
51 V	1	45 0.388 ppb	15.26	10.00	10.00	
52 Cr	1	45 1.100 ppb	4.86	8.00	5.00	
55 Mn	1	45 2.253 ppb	7.03	8.00	10.00	
56 Fe	1	72 85500.000 ppb	2.67	#####	#####	
59 Co	1	72 1.507 ppb	2.50	8.00	10.00	
60 Ni	1	72 1.695 ppb	6.79	8.00	10.00	
63 Cu	1	72 0.453 ppb	2.44	8.00	10.00	
66 Zn	1	72 1.648 ppb	12.99	10.00	5.00	
75 As	1	72 0.430 ppb	7.44	4.00	5.00	
78 Se	1	72 0.162 ppb	15.05	2.00	5.00	
88 Sr	2	115 0.637 ppb	10.85	10.00	10.00	
95 Mo	2	115 2119.000 ppb	4.42	8.00	5.00	
107 Ag	2	115 0.235 ppb	6.33	0.80	2.00	
111 Cd	2	115 0.588 ppb	36.65	1.20	1.00	
118 Sn	2	115 0.488 ppb	11.66	10.00	10.00	
121 Sb	2	115 0.391 ppb	1.39	4.00	2.50	
137 Ba	2	115 0.332 ppb	25.56	8.00	10.00	
205 Tl	2	209 0.538 ppb	9.96	4.00	1.50	
208 Pb	2	209 0.403 ppb	15.55	1.20	1.00	

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec (%)	QC Range(%)	Flag
6 Li	2	188484.69	4.61	4.61	301176.25	62.6	70 -	120 ISFail
45 Sc	1	10565.24	4.17	4.17	11387.52	92.8	70 -	120
45 Sc	2	474739.28	5.06	5.06	569049.13	83.4	70 -	120
72 Ge	1	6939.35	0.94	0.94	7050.31	98.4	70 -	120
115 In	2	505177.75	5.68	5.68	536581.75	94.1	70 -	120
209 Bi	2	379445.22	6.85	6.85	414466.09	91.6	70 -	120

ICS-AB QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\013ICSB.D\013ICSB.D#

Date Acquired:	Jul 18 2012 11:57 am	Sample Name:	ICSB-120718
Acq. Method:	DHL_3.m	Misc Info:	ICSBICPMS_TW
Operator:	AR	Diln Factor:	1.00
Last Cal. Update:	Jul 18 2012 11:29 am		
Instrument:	ICPMS3		

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Flag
7 Li	2 45	-0.88 ppb	4.54	---	80 - 120	
9 Be	2 45	0.04 ppb	11.89	---	80 - 120	
11 B	2 45	8.85 ppb	4.28	---	80 - 120	
23 Na	1 45	93000.00 ppb	1.92 100000.00	80	- 120	
24 Mg	1 45	93080.00 ppb	1.07 100000.00	80	- 120	
27 Al	1 45	89250.00 ppb	1.84 100000.00	80	- 120	
39 K	1 45	94900.00 ppb	0.70 100000.00	80	- 120	
44 Ca	2 45	96870.00 ppb	3.74 100000.00	80	- 120	
47 Ti	1 45	2064.00 ppb	0.48	---	80 - 120	
51 V	1 45	41.24 ppb	0.88	40.00	80 - 120	
52 Cr	1 45	21.26 ppb	0.85	20.00	80 - 120	
55 Mn	1 45	23.88 ppb	1.69	20.00	80 - 120	
56 Fe	1 72	85250.00 ppb	2.30 100000.00	80	- 120	
59 Co	1 72	38.47 ppb	1.22	40.00	80 - 120	
60 Ni	1 72	37.57 ppb	1.54	40.00	80 - 120	
63 Cu	1 72	18.56 ppb	1.81	20.00	80 - 120	
66 Zn	1 72	20.27 ppb	0.27	20.00	80 - 120	
75 As	1 72	18.96 ppb	0.92	20.00	80 - 120	
78 Se	1 72	17.77 ppb	4.59	20.00	80 - 120	
88 Sr	2 115	0.59 ppb	7.14	---	80 - 120	
95 Mo	2 115	2124.00 ppb	4.56	---	80 - 120	
107 Ag	2 115	18.93 ppb	4.10	20.00	80 - 120	
111 Cd	2 115	9.26 ppb	2.91	10.00	80 - 120	
118 Sn	2 115	0.56 ppb	1.97	---	80 - 120	
121 Sb	2 115	0.44 ppb	14.17	---	80 - 120	
137 Ba	2 115	0.33 ppb	7.69	---	80 - 120	
205 Tl	2 209	0.32 ppb	8.40	---	80 - 120	
208 Pb	2 209	0.50 ppb	3.48	---	80 - 120	

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	174264.05	4.17	301176.25	57.9	70	- 120		ISFail
45 Sc	1	10215.60	0.91	11387.52	89.7	70	- 120		
45 Sc	2	462275.38	3.53	569049.13	81.2	70	- 120		
72 Ge	1	6711.66	0.74	7050.31	95.2	70	- 120		
115 In	2	500777.06	4.74	536581.75	93.3	70	- 120		
209 Bi	2	377730.09	5.10	414466.09	91.1	70	- 120		

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\016ICV.D\016ICV.D#

Date Acquired:	Jul 18 2012 12:14 pm	Sample Name:	ICV1-120718
Acq. Method:	DHL_3.m	Misc Info:	ICV ICPMS_TW
Operator:	AR	Diln Factor:	1.00
Last Cal. Update:	Jul 18 2012 11:29 am		
Instrument:	ICPMS3		

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2 45	81.23 ppb	2.93	100.00	90 - 110	81.2	Fail
9 Be	2 45	89.05 ppb	2.81	100.00	90 - 110	89.1	Fail
11 B	2 45	78.51 ppb	2.86	100.00	90 - 110	78.5	Fail
23 Na	1 45	2696.00 ppb	0.21	2500.00	90 - 110	107.8	
24 Mg	1 45	2597.00 ppb	0.51	2500.00	90 - 110	103.9	
27 Al	1 45	2382.00 ppb	1.17	2500.00	90 - 110	95.3	
39 K	1 45	2653.00 ppb	0.45	2500.00	90 - 110	106.1	
44 Ca	2 45	2546.00 ppb	3.28	2500.00	90 - 110	101.8	
47 Ti	1 45	104.10 ppb	7.81	100.00	90 - 110	104.1	
51 V	1 45	102.30 ppb	1.12	100.00	90 - 110	102.3	
52 Cr	1 45	105.70 ppb	0.73	100.00	90 - 110	105.7	
55 Mn	1 45	102.70 ppb	1.78	100.00	90 - 110	102.7	
56 Fe	1 72	2513.00 ppb	0.99	2500.00	90 - 110	100.5	
59 Co	1 72	101.70 ppb	0.73	100.00	90 - 110	101.7	
60 Ni	1 72	102.00 ppb	0.24	100.00	90 - 110	102.0	
63 Cu	1 72	101.50 ppb	0.74	100.00	90 - 110	101.5	
66 Zn	1 72	102.30 ppb	2.87	100.00	90 - 110	102.3	
75 As	1 72	96.74 ppb	1.11	100.00	90 - 110	96.7	
78 Se	1 72	98.51 ppb	1.28	100.00	90 - 110	98.5	
88 Sr	2 115	98.26 ppb	4.59	100.00	90 - 110	98.3	
95 Mo	2 115	101.10 ppb	3.84	100.00	90 - 110	101.1	
107 Ag	2 115	95.00 ppb	4.48	100.00	90 - 110	95.0	
111 Cd	2 115	96.17 ppb	3.71	100.00	90 - 110	96.2	
118 Sn	2 115	101.50 ppb	4.77	100.00	90 - 110	101.5	
121 Sb	2 115	96.05 ppb	3.77	100.00	90 - 110	96.1	
137 Ba	2 115	97.57 ppb	3.40	100.00	90 - 110	97.6	
205 Tl	2 209	99.22 ppb	5.01	100.00	90 - 110	99.2	
208 Pb	2 209	98.77 ppb	4.29	100.00	90 - 110	98.8	

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2		204618.22	3.57	301176.25	67.9	70 -	120	ISFail
45 Sc	1		10123.08	3.37	11387.52	88.9	70 -	120	
45 Sc	2		498272.78	3.80	569049.13	87.6	70 -	120	
72 Ge	1		6374.15	2.02	7050.31	90.4	70 -	120	
115 In	2		523246.41	3.31	536581.75	97.5	70 -	120	
209 Bi	2		395550.09	5.50	414466.09	95.4	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\017ICV.D\017ICV.D#

Date Acquired:	Jul 18 2012 12:22 pm	Sample Name:	ICV1-120718
Acq. Method:	DHL_3.m	Misc Info:	ICV ICPMS_TW
Operator:	AR	Diln Factor:	1.00
Last Cal. Update:	Jul 18 2012 11:29 am		
Instrument:	ICPMS3		

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2 45	95.97 ppb	5.50	100.00	90 -	110	96.0
9 Be	2 45	105.90 ppb	4.38	100.00	90 -	110	105.9
11 B	2 45	95.63 ppb	3.80	100.00	90 -	110	95.6
23 Na	1 45	3010.00 ppb	0.10	2500.00	90 -	110	120.4 Fail
24 Mg	1 45	2937.00 ppb	1.11	2500.00	90 -	110	117.5 Fail
27 Al	1 45	2737.00 ppb	2.28	2500.00	90 -	110	109.5
39 K	1 45	3012.00 ppb	0.83	2500.00	90 -	110	120.5 Fail
44 Ca	2 45	2964.00 ppb	4.44	2500.00	90 -	110	118.6 Fail
47 Ti	1 45	122.50 ppb	2.56	100.00	90 -	110	122.5 Fail
51 V	1 45	118.30 ppb	0.77	100.00	90 -	110	118.3 Fail
52 Cr	1 45	121.30 ppb	0.47	100.00	90 -	110	121.3 Fail
55 Mn	1 45	120.90 ppb	1.11	100.00	90 -	110	120.9 Fail
56 Fe	1 72	2827.00 ppb	2.10	2500.00	90 -	110	113.1 Fail
59 Co	1 72	116.80 ppb	0.28	100.00	90 -	110	116.8 Fail
60 Ni	1 72	115.80 ppb	0.82	100.00	90 -	110	115.8 Fail
63 Cu	1 72	116.00 ppb	0.04	100.00	90 -	110	116.0 Fail
66 Zn	1 72	116.30 ppb	0.92	100.00	90 -	110	116.3 Fail
75 As	1 72	112.30 ppb	0.80	100.00	90 -	110	112.3 Fail
78 Se	1 72	115.30 ppb	3.10	100.00	90 -	110	115.3 Fail
88 Sr	2 115	116.60 ppb	5.30	100.00	90 -	110	116.6 Fail
95 Mo	2 115	117.70 ppb	4.60	100.00	90 -	110	117.7 Fail
107 Ag	2 115	113.30 ppb	5.23	100.00	90 -	110	113.3 Fail
111 Cd	2 115	113.80 ppb	4.90	100.00	90 -	110	113.8 Fail
118 Sn	2 115	120.60 ppb	3.89	100.00	90 -	110	120.6 Fail
121 Sb	2 115	113.50 ppb	4.15	100.00	90 -	110	113.5 Fail
137 Ba	2 115	116.80 ppb	4.57	100.00	90 -	110	116.8 Fail
205 Tl	2 209	116.30 ppb	4.43	100.00	90 -	110	116.3 Fail
208 Pb	2 209	115.00 ppb	5.33	100.00	90 -	110	115.0 Fail

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2		196026.36	6.07	301176.25	65.1	70 -	120	ISFail
45 Sc	1		10124.86	1.16	11387.52	88.9	70 -	120	
45 Sc	2		476230.34	5.01	569049.13	83.7	70 -	120	
72 Ge	1		6365.04	1.56	7050.31	90.3	70 -	120	
115 In	2		500475.09	5.34	536581.75	93.3	70 -	120	
209 Bi	2		384612.19	5.88	414466.09	92.8	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\019LCVL.D\019LCVL.D#

Date Acquired:	Jul 18 2012 12:39 pm	Sample Name:	LCVL-120718
Acq. Method:	DHL_3.m	Misc Info:	LCVL6020A_W
Operator:	AR	Diln Factor:	1.00
Last Cal. Update:	Jul 18 2012 11:29 am		
Instrument:	ICPMS3		

QC Elements

Element		Conc.	RSD (%)	Expected QC	Range (%)	Rec (%)	Flag
7 Li	2 45	3.71 ppb	2.86	5.00	80 -	120	74.1 Fail
9 Be	2 45	0.92 ppb	7.24	1.00	80 -	120	92.2
11 B	2 45	19.46 ppb	2.65	5.00	80 -	120	389.2 Fail
23 Na	1 45	98.43 ppb	1.93	100.00	80 -	120	98.4
24 Mg	1 45	96.91 ppb	9.15	100.00	80 -	120	96.9
27 Al	1 45	91.75 ppb	9.13	100.00	80 -	120	91.8
39 K	1 45	87.98 ppb	2.52	100.00	80 -	120	88.0
44 Ca	2 45	99.44 ppb	2.53	100.00	80 -	120	99.4
47 Ti	1 45	5.61 ppb	13.82	5.00	80 -	120	112.1
51 V	1 45	0.94 ppb	5.04	1.00	80 -	120	93.6
52 Cr	1 45	4.50 ppb	3.74	5.00	80 -	120	89.9
55 Mn	1 45	4.66 ppb	2.87	5.00	80 -	120	93.2
56 Fe	1 72	113.30 ppb	5.11	100.00	80 -	120	113.3
59 Co	1 72	4.54 ppb	3.05	5.00	80 -	120	90.7
60 Ni	1 72	4.48 ppb	5.67	5.00	80 -	120	89.5
63 Cu	1 72	4.61 ppb	2.93	5.00	80 -	120	92.2
66 Zn	1 72	4.53 ppb	4.44	5.00	80 -	120	90.6
75 As	1 72	4.57 ppb	2.79	5.00	80 -	120	91.5
78 Se	1 72	4.48 ppb	4.98	5.00	80 -	120	89.6
88 Sr	2 115	4.92 ppb	3.86	5.00	80 -	120	98.3
95 Mo	2 115	6.34 ppb	5.23	5.00	80 -	120	126.9 Fail
107 Ag	2 115	1.99 ppb	5.01	2.00	80 -	120	99.7
111 Cd	2 115	0.98 ppb	5.92	1.00	80 -	120	97.7
118 Sn	2 115	5.03 ppb	3.75	5.00	80 -	120	100.5
121 Sb	2 115	1.87 ppb	3.97	2.00	80 -	120	93.4
137 Ba	2 115	4.87 ppb	6.11	5.00	80 -	120	97.4
205 Tl	2 209	1.47 ppb	4.68	1.00	80 -	120	147.0 Fail
208 Pb	2 209	1.03 ppb	7.02	1.00	80 -	120	103.2

ISTD Elements

Element		CPS	Mean	RSD (%)	Ref Value	Rec (%)	QC	Range (%)	Flag
6 Li	2	232207.97	2.12	2.12	301176.25	77.1	70 -	120	
45 Sc	1	13160.30	13.32	13.32	11387.52	115.6	70 -	120	
45 Sc	2	531261.94	2.86	2.86	569049.13	93.4	70 -	120	
72 Ge	1	7779.22	9.17	9.17	7050.31	110.3	70 -	120	
115 In	2	558624.13	3.35	3.35	536581.75	104.1	70 -	120	
209 Bi	2	421383.47	5.16	5.16	414466.09	101.7	70 -	120	

ICB QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\021_ICB.D\021_ICB.D#

Date Acquired:	Jul 18 2012 12:52 pm	Sample Name:	ICB1-120718
Acq. Method:	DHL_3.m	Misc Info:	ICB ICPMS_TW
Operator:	AR	Diln Factor:	1.00
Last Cal. Update:	Jul 18 2012 11:29 am	Instrument:	ICPMS3

QC Elements

Element	Conc.	RSD (%)	High Limit	Flag
7 Li 2 45	-0.72 ppb	0.22	5.00	
9 Be 2 45	-0.05 ppb	12.60	0.80	
11 B 2 45	2.01 ppb	1.49	10.00	
23 Na 1 45	26.41 ppb	0.98	50.00	
24 Mg 1 45	6.39 ppb	19.10	50.00	
27 Al 1 45	4.30 ppb	4.42	30.00	
39 K 1 45	7.02 ppb	3.40	50.00	
44 Ca 2 45	-1.49 ppb	4.05	50.00	
47 Ti 1 45	0.21 ppb	65.47	10.00	
51 V 1 45	0.03 ppb	15.03	10.00	
52 Cr 1 45	0.01 ppb	3.72	3.00	
55 Mn 1 45	0.03 ppb	18.62	10.00	
56 Fe 1 72	6.69 ppb	9.31	50.00	
59 Co 1 72	0.01 ppb	17.24	3.00	
60 Ni 1 72	-0.04 ppb	7.25	3.00	
63 Cu 1 72	0.03 ppb	10.11	3.00	
66 Zn 1 72	-0.27 ppb	1.90	10.00	
75 As 1 72	-0.05 ppb	23.74	10.00	
78 Se 1 72	0.06 ppb	19.05	10.00	
88 Sr 2 115	0.00 ppb	6.86	10.00	
95 Mo 2 115	0.56 ppb	16.11	10.00	
107 Ag 2 115	0.02 ppb	18.04	2.00	
111 Cd 2 115	-0.04 ppb	31.38	1.00	
118 Sn 2 115	-0.02 ppb	7.30	10.00	
121 Sb 2 115	-0.04 ppb	3.38	1.00	
137 Ba 2 115	0.01 ppb	17.28	3.00	
205 Tl 2 209	0.14 ppb	11.45	1.00	
208 Pb 2 209	0.00 ppb	17.68	1.00	

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li 2	230787.67	1.94		301176.25	76.6	70 -	120
45 Sc 1	11021.18	1.30		11387.52	96.8	70 -	120
45 Sc 2	520282.09	3.05		569049.13	91.4	70 -	120
72 Ge 1	6967.59	2.26		7050.31	98.8	70 -	120
115 In 2	541569.00	3.93		536581.75	100.9	70 -	120
209 Bi 2	412677.41	3.84		414466.09	99.6	70 -	120

PB QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\022__PB.D\022__PB.D#

Date Acquired:	Jul 18 2012 12:58 pm	Sample Name:	MB-52729
Acq. Method:	DHL_3.m	Misc Info:	MBLK6020A_W
Operator:	AR	Bench Diln:	1.00
Last Cal. Update:	Jul 18 2012 11:29 am	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element		Conc.	RSD (%)	MDL	RL	Flag
7 Li	2 45	-0.644 ppb	3.38	2.0	5.00	
9 Be	2 45	-0.060 ppb	14.70	0.3	0.80	
11 B	2 45	0.774 ppb	2.20	10.0	30.00	
23 Na	1 45	35.720 ppb	0.87	100.0	#####	
24 Mg	1 45	7.212 ppb	41.18	100.0	#####	
27 Al	1 45	3.088 ppb	23.43	10.0	30.00	
39 K	1 45	8.699 ppb	1.99	100.0	#####	
44 Ca	2 45	-5.301 ppb	1.12	100.0	#####	
47 Ti	1 45	0.267 ppb	94.39	3.0	10.00	
51 V	1 45	0.012 ppb	9.45	3.0	10.00	
52 Cr	1 45	0.038 ppb	13.23	2.0	5.00	
55 Mn	1 45	0.009 ppb	10.82	3.0	10.00	
56 Fe	1 72	6.790 ppb	30.26	50.0	#####	
59 Co	1 72	0.009 ppb	16.59	3.0	10.00	
60 Ni	1 72	-0.097 ppb	6.79	3.0	10.00	
63 Cu	1 72	0.115 ppb	10.40	2.0	10.00	
66 Zn	1 72	0.205 ppb	3.39	2.0	5.00	
75 As	1 72	-0.042 ppb	9.64	2.0	5.00	
78 Se	1 72	-0.007 ppb	26.32	2.0	5.00	
88 Sr	2 115	-0.012 ppb	3.36	3.0	10.00	
95 Mo	2 115	0.475 ppb	7.67	2.0	5.00	
107 Ag	2 115	0.015 ppb	6.19	1.0	2.00	
111 Cd	2 115	-0.043 ppb	19.97	0.3	1.00	
118 Sn	2 115	-0.018 ppb	3.81	3.0	10.00	
121 Sb	2 115	0.003 ppb	2.47	0.8	2.50	
137 Ba	2 115	-0.009 ppb	38.02	3.0	10.00	
205 Tl	2 209	0.109 ppb	6.14	0.5	1.50	
208 Pb	2 209	-0.012 ppb	12.73	0.3	1.00	

ISTD Elements

Element	CPS	Mean	RSD (%)	Ref Value	Rec (%)	QC Range (%)	Flag
6 Li	2	228412.36	2.84	301176.25	75.8	70 - 120	
45 Sc	1	10528.75	1.33	11387.52	92.5	70 - 120	
45 Sc	2	511503.09	3.20	569049.13	89.9	70 - 120	
72 Ge	1	6786.37	2.72	7050.31	96.3	70 - 120	
115 In	2	539180.94	5.30	536581.75	100.5	70 - 120	
209 Bi	2	404605.38	4.87	414466.09	97.6	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\023_LCS.D\023_LCS.D#

Date Acquired: Jul 18 2012 01:03 pm Sample Name: **LCS-52729**
 Acq. Method: DHL_3.m Misc Info: LCS 6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:29 am Auto Dil: Undiluted
 Instrument: ICPMS3 Total Dil: 1.00

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2	45	175.90 ppb	3.95	200.00	80 -	120 88.0
9 Be	2	45	182.20 ppb	1.81	200.00	80 -	120 91.1
11 B	2	45	158.60 ppb	2.35	200.00	80 -	120 79.3 Fail
23 Na	1	45	4946.00 ppb	0.93	5000.00	80 -	120 98.9
24 Mg	1	45	4847.00 ppb	0.94	5000.00	80 -	120 96.9
27 Al	1	45	4641.00 ppb	1.40	5000.00	80 -	120 92.8
39 K	1	45	4902.00 ppb	1.34	5000.00	80 -	120 98.0
44 Ca	2	45	4877.00 ppb	3.03	5000.00	80 -	120 97.5
47 Ti	1	45	201.50 ppb	1.72	200.00	80 -	120 100.8
51 V	1	45	199.40 ppb	1.36	200.00	80 -	120 99.7
52 Cr	1	45	202.20 ppb	0.52	200.00	80 -	120 101.1
55 Mn	1	45	202.80 ppb	0.77	200.00	80 -	120 101.4
56 Fe	1	72	4836.00 ppb	1.71	5000.00	80 -	120 96.7
59 Co	1	72	194.90 ppb	0.42	200.00	80 -	120 97.5
60 Ni	1	72	196.30 ppb	0.40	200.00	80 -	120 98.2
63 Cu	1	72	196.80 ppb	0.28	200.00	80 -	120 98.4
66 Zn	1	72	195.00 ppb	1.43	200.00	80 -	120 97.5
75 As	1	72	193.70 ppb	0.71	200.00	80 -	120 96.9
78 Se	1	72	197.20 ppb	1.98	200.00	80 -	120 98.6
88 Sr	2	115	200.50 ppb	2.73	200.00	80 -	120 100.3
95 Mo	2	115	194.80 ppb	3.23	200.00	80 -	120 97.4
107 Ag	2	115	187.10 ppb	3.72	200.00	80 -	120 93.6
111 Cd	2	115	193.80 ppb	4.31	200.00	80 -	120 96.9
118 Sn	2	115	198.10 ppb	3.33	200.00	80 -	120 99.1
121 Sb	2	115	190.20 ppb	2.93	200.00	80 -	120 95.1
137 Ba	2	115	193.00 ppb	3.34	200.00	80 -	120 96.5
205 Tl	2	209	197.70 ppb	4.19	200.00	80 -	120 98.9
208 Pb	2	209	197.20 ppb	3.87	200.00	80 -	120 98.6

ISTD Elements

Element		CPS	Mean RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2	185525.59	2.92	301176.25	61.6	70 -	120 ISFail
45 Sc	1	10085.94	0.41	11387.52	88.6	70 -	120
45 Sc	2	491491.28	3.04	569049.13	86.4	70 -	120
72 Ge	1	6334.80	0.32	7050.31	89.9	70 -	120
115 In	2	511910.25	4.73	536581.75	95.4	70 -	120
209 Bi	2	389304.88	4.32	414466.09	93.9	70 -	120

LCS QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\024_LCS.D\024_LCS.D#

Date Acquired: Jul 18 2012 01:09 pm Sample Name: **LCSD-52729**
 Acq. Method: DHL_3.m Misc Info: LCSD6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:29 am Auto Dil: Undiluted
 Instrument: ICPMS3 Total Dil: 1.00

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2	45	172.40 ppb	4.50	200.00	80 -	120 86.2
9 Be	2	45	178.70 ppb	3.93	200.00	80 -	120 89.4
11 B	2	45	159.00 ppb	4.23	200.00	80 -	120 79.5 Fail
23 Na	1	45	4847.00 ppb	0.85	5000.00	80 -	120 96.9
24 Mg	1	45	4702.00 ppb	0.94	5000.00	80 -	120 94.0
27 Al	1	45	4567.00 ppb	1.77	5000.00	80 -	120 91.3
39 K	1	45	4789.00 ppb	1.20	5000.00	80 -	120 95.8
44 Ca	2	45	4782.00 ppb	4.10	5000.00	80 -	120 95.6
47 Ti	1	45	195.70 ppb	1.11	200.00	80 -	120 97.9
51 V	1	45	195.60 ppb	1.07	200.00	80 -	120 97.8
52 Cr	1	45	198.00 ppb	0.19	200.00	80 -	120 99.0
55 Mn	1	45	200.30 ppb	1.35	200.00	80 -	120 100.2
56 Fe	1	72	4788.00 ppb	2.10	5000.00	80 -	120 95.8
59 Co	1	72	192.90 ppb	0.81	200.00	80 -	120 96.5
60 Ni	1	72	192.80 ppb	0.81	200.00	80 -	120 96.4
63 Cu	1	72	194.90 ppb	0.81	200.00	80 -	120 97.5
66 Zn	1	72	194.60 ppb	0.31	200.00	80 -	120 97.3
75 As	1	72	190.00 ppb	0.27	200.00	80 -	120 95.0
78 Se	1	72	193.30 ppb	1.08	200.00	80 -	120 96.7
88 Sr	2	115	195.60 ppb	4.35	200.00	80 -	120 97.8
95 Mo	2	115	192.60 ppb	4.74	200.00	80 -	120 96.3
107 Ag	2	115	188.00 ppb	4.02	200.00	80 -	120 94.0
111 Cd	2	115	191.90 ppb	4.76	200.00	80 -	120 96.0
118 Sn	2	115	196.90 ppb	4.66	200.00	80 -	120 98.5
121 Sb	2	115	189.70 ppb	4.50	200.00	80 -	120 94.9
137 Ba	2	115	190.80 ppb	4.22	200.00	80 -	120 95.4
205 Tl	2	209	197.00 ppb	4.80	200.00	80 -	120 98.5
208 Pb	2	209	195.40 ppb	5.87	200.00	80 -	120 97.7

ISTD Elements

Element	CPS	Mean RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag	
6 Li	2	183398.36	4.29	301176.25	60.9	70 -	120
45 Sc	1	9910.49	0.91	11387.52	87.0	70 -	120
45 Sc	2	480940.78	4.81	569049.13	84.5	70 -	120
72 Ge	1	6204.96	1.65	7050.31	88.0	70 -	120
115 In	2	500448.84	4.95	536581.75	93.3	70 -	120
209 Bi	2	380584.97	5.73	414466.09	91.8	70 -	120

DT QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\028DT1.D\028DT1.D#

Date Acquired:	Jul 18 2012 01:31 pm	Sample Name:	1207101-08B SD
Acq. Method:	DHL_3.m	Misc Info:	SD 6020A_W
Operator:	AR	Bench Diln:	5.00
Last Cal. Update:	Jul 18 2012 11:29 am	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element	Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2 45	1.27 ppb	4.70 224872.83	90 - 110	0.0	
9 Be	2 45	-0.05 ppb	22.98 -0.04	90 - 110	581.2	
11 B	2 45	98.39 ppb	3.47 442.50	90 - 110	111.2	
23 Na	1 45	2897.00 ppb	1.46 14370.00	90 - 110	100.8 GOOD	
24 Mg	1 45	3747.00 ppb	1.75 18180.00	90 - 110	103.1 GOOD	
27 Al	1 45	1.77 ppb	9.74 8.46	90 - 110	104.7 GOOD	
39 K	1 45	1157.00 ppb	2.14 5627.00	90 - 110	102.8 GOOD	
44 Ca	2 45	37000.00 ppb	3.88 176300.00	90 - 110	104.9 GOOD	
47 Ti	1 45	-0.08 ppb	0.00 0.15	90 - 110	-266.4	
51 V	1 45	0.37 ppb	6.31 1.77	90 - 110	103.2 GOOD	
52 Cr	1 45	0.03 ppb	8.14 0.10	90 - 110	145.2	
55 Mn	1 45	522.30 ppb	1.53 2526.00	90 - 110	103.4 GOOD	
56 Fe	1 72	230.90 ppb	1.81 1110.00	90 - 110	104.0 GOOD	
59 Co	1 72	1.28 ppb	4.18 6.13	90 - 110	104.0 GOOD	
60 Ni	1 72	1.14 ppb	1.90 6.04	90 - 110	94.2 GOOD	
63 Cu	1 72	0.11 ppb	5.24 0.61	90 - 110	91.1 GOOD	
66 Zn	1 72	0.67 ppb	14.28 5.57	90 - 110	60.3	
75 As	1 72	4.15 ppb	4.68 20.14	90 - 110	103.0 GOOD	
78 Se	1 72	0.01 ppb	18.98 0.33	90 - 110	10.6	
88 Sr	2 115	146.70 ppb	4.21 713.50	90 - 110	102.8 GOOD	
95 Mo	2 115	0.49 ppb	6.62 1.24	90 - 110	196.8	
107 Ag	2 115	0.03 ppb	18.93 0.04	90 - 110	284.1	
111 Cd	2 115	-0.01 ppb	36.90 -0.01	90 - 110	531.0	
118 Sn	2 115	0.00 ppb	10.78 0.25	90 - 110	8.7	
121 Sb	2 115	0.05 ppb	9.27 0.30	90 - 110	76.2	
137 Ba	2 115	111.80 ppb	5.12 549.50	90 - 110	101.7 GOOD	
205 Tl	2 209	0.17 ppb	5.53 0.31	90 - 110	275.4	
208 Pb	2 209	0.01 ppb	15.58 0.05	90 - 110	63.4	

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2	224872.83	5.78	301176.25	74.7	70 - 120	
45 Sc	1	10536.52	1.76	11387.52	92.5	70 - 120	
45 Sc	2	510563.03	4.89	569049.13	89.7	70 - 120	
72 Ge	1	6650.97	1.61	7050.31	94.3	70 - 120	
115 In	2	529723.31	5.42	536581.75	98.7	70 - 120	
209 Bi	2	404027.38	5.17	414466.09	97.5	70 - 120	

PDS QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\037_PDS.D\037_PDS.D#

Date Acquired: Jul 18 2012 02:22 pm Sample Name: **1207101-08B PDS**
 Acq. Method: DHL_3.m Misc Info: PDS 6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:29 am Auto Diln: Undiluted
 Instrument: ICPMS3 Total Diln: 1.00

QC Elements

Element	Conc.	RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7 Li	2 45	174.80 ppb	3.10 266554.66	200	75-125	#####	Fail
9 Be	2 45	178.90 ppb	3.91 -0.04	200	75-125	89.5	
11 B	2 45	658.70 ppb	9.57 442.50	200	75-125	108.1	
23 Na	1 45	18020.00 ppb	1.60 14370.00	5000	75-125	73.0	Fail
24 Mg	1 45	22270.00 ppb	2.14 18180.00	5000	75-125	81.8	
27 Al	1 45	4850.00 ppb	1.75 8.46	5000	75-125	96.8	
39 K	1 45	10750.00 ppb	1.18 5627.00	5000	75-125	102.5	
44 Ca	2 45	176700.00 ppb	3.60 176300.00	5000	75-125	8.0	Fail
47 Ti	1 45	201.60 ppb	1.48 0.15	200	75-125	100.7	
51 V	1 45	204.60 ppb	1.05 1.77	200	75-125	101.4	
52 Cr	1 45	203.90 ppb	0.44 0.10	200	75-125	101.9	
55 Mn	1 45	2634.00 ppb	0.89 2526.00	200	75-125	54.0	Fail
56 Fe	1 72	5735.00 ppb	1.94 1110.00	5000	75-125	92.5	
59 Co	1 72	200.70 ppb	0.62 6.13	200	75-125	97.3	
60 Ni	1 72	195.80 ppb	1.06 6.04	200	75-125	94.9	
63 Cu	1 72	186.80 ppb	0.52 0.61	200	75-125	93.1	
66 Zn	1 72	193.00 ppb	0.91 5.57	200	75-125	93.7	
75 As	1 72	216.10 ppb	0.80 20.14	200	75-125	98.0	
78 Se	1 72	198.50 ppb	3.28 0.33	200	75-125	99.1	
88 Sr	2 115	895.90 ppb	3.94 713.50	200	75-125	91.2	
95 Mo	2 115	204.40 ppb	4.58 1.24	200	75-125	101.6	
107 Ag	2 115	189.60 ppb	4.55 0.04	200	75-125	94.8	
111 Cd	2 115	195.20 ppb	5.48 -0.01	200	75-125	97.6	
118 Sn	2 115	213.30 ppb	5.04 0.25	200	75-125	106.5	
121 Sb	2 115	198.50 ppb	5.71 0.30	200	75-125	99.1	
137 Ba	2 115	731.70 ppb	5.70 549.50	200	75-125	91.1	
205 Tl	2 209	211.60 ppb	7.53 0.31	200	75-125	105.6	
208 Pb	2 209	202.70 ppb	5.05 0.05	200	75-125	101.3	

ISTD Elements

Element	CPS	Mean RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2	266554.66	3.61	301176.25	88.5 70 - 120	
45 Sc	1	15521.78	1.54	11387.52	136.3 70 - 120	ISFail
45 Sc	2	717356.00	4.30	569049.13	126.1 70 - 120	ISFail
72 Ge	1	9471.05	1.29	7050.31	134.3 70 - 120	ISFail
115 In	2	681976.31	5.60	536581.75	127.1 70 - 120	ISFail
209 Bi	2	498210.88	5.43	414466.09	120.2 70 - 120	ISFail

MS/MSD QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\038_MS.D\038_MS.D#

Date Acquired: Jul 18 2012 02:27 pm Sample Name: **1207101-08B MS**
 Acq. Method: DHL_3.m Misc Info: MS 6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:29 am Auto Diln: Undiluted
 Instrument: ICPMS3 Total Diln: 1.00

QC Elements

Element	Conc.	RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7 Li	2 45	176.80 ppb	3.93 #####	200	80-120	#####	Fail
9 Be	2 45	177.70 ppb	3.64 -0.04	200	80-120	88.9	
11 B	2 45	681.00 ppb	8.01 442.50	200	80-120	119.3	
23 Na	1 45	18310.00 ppb	1.53 14370.00	5000	80-120	78.8	Fail
24 Mg	1 45	22330.00 ppb	2.63 18180.00	5000	80-120	83.0	
27 Al	1 45	4795.00 ppb	2.54 8.46	5000	80-120	95.7	
39 K	1 45	10720.00 ppb	1.53 5627.00	5000	80-120	101.9	
44 Ca	2 45	183500.00 ppb	3.57 #####	5000	80-120	144.0	Fail
47 Ti	1 45	197.10 ppb	3.87 0.15	200	80-120	98.5	
51 V	1 45	201.30 ppb	2.62 1.77	200	80-120	99.8	
52 Cr	1 45	196.90 ppb	1.65 0.10	200	80-120	98.4	
55 Mn	1 45	2691.00 ppb	1.72 2526.00	200	80-120	82.5	
56 Fe	1 72	5824.00 ppb	1.67 1110.00	5000	80-120	94.3	
59 Co	1 72	195.60 ppb	1.23 6.13	200	80-120	94.7	
60 Ni	1 72	194.40 ppb	1.26 6.04	200	80-120	94.2	
63 Cu	1 72	186.80 ppb	1.66 0.61	200	80-120	93.1	
66 Zn	1 72	189.60 ppb	1.66 5.57	200	80-120	92.0	
75 As	1 72	219.10 ppb	2.01 20.14	200	80-120	99.5	
78 Se	1 72	200.70 ppb	2.87 0.33	200	80-120	100.2	
88 Sr	2 115	931.80 ppb	5.19 713.50	200	80-120	109.2	
95 Mo	2 115	207.10 ppb	3.52 1.24	200	80-120	102.9	
107 Ag	2 115	189.80 ppb	4.15 0.04	200	80-120	94.9	
111 Cd	2 115	194.90 ppb	4.23 -0.01	200	80-120	97.5	
118 Sn	2 115	206.60 ppb	4.03 0.25	200	80-120	103.2	
121 Sb	2 115	197.70 ppb	4.63 0.30	200	80-120	98.7	
137 Ba	2 115	752.50 ppb	4.61 549.50	200	80-120	101.5	
205 Tl	2 209	205.20 ppb	5.20 0.31	200	80-120	102.4	
208 Pb	2 209	204.40 ppb	4.76 0.05	200	80-120	102.2	

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	236623.41	3.04	301176.25	78.6	70 -	120	
45 Sc	1	15127.58	2.64	11387.52	132.8	70 -	120	ISFail
45 Sc	2	700367.00	3.97	569049.13	123.1	70 -	120	ISFail
72 Ge	1	9155.50	2.38	7050.31	129.9	70 -	120	ISFail
115 In	2	669323.88	4.66	536581.75	124.7	70 -	120	ISFail
209 Bi	2	488001.28	5.33	414466.09	117.7	70 -	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\039_MS.D\039_MS.D#

Date Acquired: Jul 18 2012 02:33 pm Sample Name: **1207101-08B MSD**
 Acq. Method: DHL_3.m Misc Info: MSD 6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:29 am Auto Diln: Undiluted
 Instrument: ICPMS3 Total Diln: 1.00

QC Elements

Element	Conc.	RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7 Li	2 45	178.90 ppb	3.02 #####	200	80-120	#####	Fail
9 Be	2 45	181.50 ppb	2.94 -0.04	200	80-120	90.8	
11 B	2 45	686.90 ppb	4.03 442.50	200	80-120	122.2	Fail
23 Na	1 45	18810.00 ppb	0.90 14370.00	5000	80-120	88.8	
24 Mg	1 45	22660.00 ppb	0.73 18180.00	5000	80-120	89.6	
27 Al	1 45	4882.00 ppb	0.44 8.46	5000	80-120	97.5	
39 K	1 45	10890.00 ppb	0.25 5627.00	5000	80-120	105.3	
44 Ca	2 45	186800.00 ppb	3.46 #####	5000	80-120	210.0	Fail
47 Ti	1 45	202.50 ppb	1.21 0.15	200	80-120	101.2	
51 V	1 45	206.00 ppb	0.60 1.77	200	80-120	102.1	
52 Cr	1 45	200.50 ppb	0.53 0.10	200	80-120	100.2	
55 Mn	1 45	2745.00 ppb	0.46 2526.00	200	80-120	109.5	
56 Fe	1 72	5800.00 ppb	0.67 1110.00	5000	80-120	93.8	
59 Co	1 72	196.20 ppb	0.66 6.13	200	80-120	95.0	
60 Ni	1 72	192.20 ppb	0.88 6.04	200	80-120	93.1	
63 Cu	1 72	185.20 ppb	1.10 0.61	200	80-120	92.3	
66 Zn	1 72	189.50 ppb	0.28 5.57	200	80-120	92.0	
75 As	1 72	217.80 ppb	0.29 20.14	200	80-120	98.8	
78 Se	1 72	195.80 ppb	1.58 0.33	200	80-120	97.7	
88 Sr	2 115	948.90 ppb	5.16 713.50	200	80-120	117.7	
95 Mo	2 115	210.70 ppb	4.71 1.24	200	80-120	104.7	
107 Ag	2 115	193.30 ppb	3.88 0.04	200	80-120	96.6	
111 Cd	2 115	197.60 ppb	5.37 -0.01	200	80-120	98.8	
118 Sn	2 115	212.40 ppb	4.93 0.25	200	80-120	106.1	
121 Sb	2 115	203.90 ppb	4.92 0.30	200	80-120	101.8	
137 Ba	2 115	770.70 ppb	4.82 549.50	200	80-120	110.6	
205 Tl	2 209	212.30 ppb	7.02 0.31	200	80-120	106.0	
208 Pb	2 209	208.40 ppb	5.28 0.05	200	80-120	104.2	

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	225501.14	1.68	301176.25	74.9	70 -	120	
45 Sc	1	14670.32	2.59	11387.52	128.8	70 -	120	ISFail
45 Sc	2	670393.31	4.06	569049.13	117.8	70 -	120	
72 Ge	1	9127.71	1.84	7050.31	129.5	70 -	120	ISFail
115 In	2	646723.50	5.27	536581.75	120.5	70 -	120	ISFail
209 Bi	2	472716.44	5.40	414466.09	114.1	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\040CCV1.D\040CCV1.D#

Date Acquired: Jul 18 2012 02:39 pm Sample Name:
 Acq. Method: DHL_3.m Misc Info:
 Operator: AR Diln Factor:
 Last Cal. Update: Jul 18 2012 11:29 am
 Instrument: ICPMS3

CCV1-120718
 CCV ICPMS_TW
 1.00

QC Elements

Element		Conc.	RSD (%)	Expected QC	Range (%)	Rec (%)	Flag
7 Li	2	45	177.70 ppb	2.67	200.00	90 - 110	88.9 Fail
9 Be	2	45	192.20 ppb	3.80	200.00	90 - 110	96.1
11 B	2	45	195.80 ppb	4.82	200.00	90 - 110	97.9
23 Na	1	45	5229.00 ppb	2.25	5000.00	90 - 110	104.6
24 Mg	1	45	5164.00 ppb	2.01	5000.00	90 - 110	103.3
27 Al	1	45	5075.00 ppb	2.05	5000.00	90 - 110	101.5
39 K	1	45	5344.00 ppb	2.56	5000.00	90 - 110	106.9
44 Ca	2	45	5664.00 ppb	4.21	5000.00	90 - 110	113.3 Fail
47 Ti	1	45	211.40 ppb	1.73	200.00	90 - 110	105.7
51 V	1	45	208.90 ppb	1.28	200.00	90 - 110	104.5
52 Cr	1	45	209.00 ppb	1.55	200.00	90 - 110	104.5
55 Mn	1	45	218.60 ppb	1.47	200.00	90 - 110	109.3
56 Fe	1	72	5109.00 ppb	1.32	5000.00	90 - 110	102.2
59 Co	1	72	205.90 ppb	1.54	200.00	90 - 110	103.0
60 Ni	1	72	204.50 ppb	0.95	200.00	90 - 110	102.3
63 Cu	1	72	205.00 ppb	0.98	200.00	90 - 110	102.5
66 Zn	1	72	212.60 ppb	1.53	200.00	90 - 110	106.3
75 As	1	72	210.90 ppb	1.44	200.00	90 - 110	105.5
78 Se	1	72	218.90 ppb	0.74	200.00	90 - 110	109.5
88 Sr	2	115	212.80 ppb	4.65	200.00	90 - 110	106.4
95 Mo	2	115	207.60 ppb	3.66	200.00	90 - 110	103.8
107 Ag	2	115	199.30 ppb	4.56	200.00	90 - 110	99.7
111 Cd	2	115	205.70 ppb	4.85	200.00	90 - 110	102.9
118 Sn	2	115	207.00 ppb	4.87	200.00	90 - 110	103.5
121 Sb	2	115	203.60 ppb	4.26	200.00	90 - 110	101.8
137 Ba	2	115	203.10 ppb	4.84	200.00	90 - 110	101.6
205 Tl	2	209	213.60 ppb	6.64	200.00	90 - 110	106.8
208 Pb	2	209	208.60 ppb	4.66	200.00	90 - 110	104.3

ISTD Elements

Element		CPS	Mean	RSD (%)	Ref Value	Rec (%)	QC	Range (%)	Flag
6 Li	2		239958.64	1.36	301176.25	79.7	70 -	120	
45 Sc	1		14882.52	0.99	11387.52	130.7	70 -	120	ISFail
45 Sc	2		680602.56	3.78	569049.13	119.6	70 -	120	
72 Ge	1		9132.35	1.84	7050.31	129.5	70 -	120	ISFail
115 In	2		684806.00	4.62	536581.75	127.6	70 -	120	ISFail
209 Bi	2		508823.31	4.52	414466.09	122.8	70 -	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\045LCVL.D\045LCVL.D#

Date Acquired: Jul 18 2012 03:07 pm Sample Name: **LCVL1-120718**
 Acq. Method: DHL_3.m Misc Info: LCVL6020A_W
 Operator: AR Diln Factor: 1.00
 Last Cal. Update: Jul 18 2012 11:29 am
 Instrument: ICPMS3

QC Elements

Element		Conc.	RSD (%)	Expected QC	Range (%)	Rec (%)	Flag
7 Li	2 45	3.69 ppb	2.39	5.00	80 - 120	73.8	Fail
9 Be	2 45	0.96 ppb	2.81	1.00	80 - 120	96.0	
11 B	2 45	21.72 ppb	2.22	5.00	80 - 120	434.4	Fail
23 Na	1 45	85.65 ppb	1.14	100.00	80 - 120	85.7	
24 Mg	1 45	107.90 ppb	2.00	100.00	80 - 120	107.9	
27 Al	1 45	102.90 ppb	4.51	100.00	80 - 120	102.9	
39 K	1 45	96.83 ppb	1.95	100.00	80 - 120	96.8	
44 Ca	2 45	126.10 ppb	4.92	100.00	80 - 120	126.1	Fail
47 Ti	1 45	5.13 ppb	5.68	5.00	80 - 120	102.5	
51 V	1 45	1.06 ppb	1.30	1.00	80 - 120	105.8	
52 Cr	1 45	5.14 ppb	2.50	5.00	80 - 120	102.7	
55 Mn	1 45	5.50 ppb	0.97	5.00	80 - 120	109.9	
56 Fe	1 72	118.00 ppb	1.15	100.00	80 - 120	118.0	
59 Co	1 72	5.11 ppb	1.97	5.00	80 - 120	102.2	
60 Ni	1 72	5.14 ppb	1.79	5.00	80 - 120	102.8	
63 Cu	1 72	5.04 ppb	1.03	5.00	80 - 120	100.9	
66 Zn	1 72	5.06 ppb	6.64	5.00	80 - 120	101.2	
75 As	1 72	5.13 ppb	2.30	5.00	80 - 120	102.7	
78 Se	1 72	5.50 ppb	4.58	5.00	80 - 120	110.1	
88 Sr	2 115	5.21 ppb	3.09	5.00	80 - 120	104.3	
95 Mo	2 115	5.45 ppb	4.75	5.00	80 - 120	109.0	
107 Ag	2 115	2.06 ppb	4.98	2.00	80 - 120	103.2	
111 Cd	2 115	0.99 ppb	12.59	1.00	80 - 120	98.7	
118 Sn	2 115	5.11 ppb	6.62	5.00	80 - 120	102.2	
121 Sb	2 115	2.16 ppb	4.52	2.00	80 - 120	108.2	
137 Ba	2 115	4.98 ppb	2.96	5.00	80 - 120	99.6	
205 Tl	2 209	1.22 ppb	6.04	1.00	80 - 120	122.0	Fail
208 Pb	2 209	1.05 ppb	3.09	1.00	80 - 120	104.9	

ISTD Elements

Element		CPS	Mean	RSD (%)	Ref Value	Rec (%)	QC	Range (%)	Flag
6 Li	2	312142.63	1.87	301176.25		103.6	70 -	120	
45 Sc	1	15897.34	0.87	11387.52		139.6	70 -	120	ISFail
45 Sc	2	719902.31	2.94	569049.13		126.5	70 -	120	ISFail
72 Ge	1	9693.68	2.36	7050.31		137.5	70 -	120	ISFail
115 In	2	704257.81	3.57	536581.75		131.2	70 -	120	ISFail
209 Bi	2	524006.88	4.10	414466.09		126.4	70 -	120	ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\047_CCB.D\047_CCB.D#

Date Acquired:	Jul 18 2012 03:18 pm	Sample Name:	CCB1-120718
Acq. Method:	DHL_3.m	Misc Info:	CCB ICPMS_TW
Operator:	AR	Diln Factor:	1.00
Last Cal. Update:	Jul 18 2012 11:29 am		
Instrument:	ICPMS3		

QC Elements

Element		Conc.	RSD(%)	MDL S	MDL Aq	Flag
7 Li	2 45	-0.852 ppb	2.48	2.00	2.00	
9 Be	2 45	-0.057 ppb	42.92	0.10	0.30	
11 B	2 45	1.930 ppb	1.82	10.00	10.00	
23 Na	1 45	-21.400 ppb	1.87	50.00	#####	
24 Mg	1 45	2.533 ppb	14.08	50.00	#####	
27 Al	1 45	0.591 ppb	6.59	50.00	10.00	
39 K	1 45	-6.077 ppb	5.48	50.00	#####	
44 Ca	2 45	5.149 ppb	3.14	50.00	#####	
47 Ti	1 45	-0.050 ppb	173.20	4.00	3.00	
51 V	1 45	0.033 ppb	9.39	4.00	3.00	
52 Cr	1 45	-0.022 ppb	2.13	2.00	2.00	
55 Mn	1 45	0.169 ppb	20.59	2.00	3.00	
56 Fe	1 72	1.369 ppb	3.21	50.00	50.00	
59 Co	1 72	0.008 ppb	11.42	2.00	3.00	
60 Ni	1 72	-0.069 ppb	20.83	2.00	3.00	
63 Cu	1 72	0.014 ppb	4.81	2.00	2.00	
66 Zn	1 72	-0.266 ppb	11.84	4.00	2.00	
75 As	1 72	-0.038 ppb	6.68	2.00	2.00	
78 Se	1 72	-0.204 ppb	28.97	0.60	2.00	
88 Sr	2 115	0.068 ppb	13.26	4.00	3.00	
95 Mo	2 115	0.171 ppb	3.75	2.00	2.00	
107 Ag	2 115	0.020 ppb	26.91	0.40	1.00	
111 Cd	2 115	-0.024 ppb	58.51	0.40	0.30	
118 Sn	2 115	-0.067 ppb	8.63	4.00	3.00	
121 Sb	2 115	0.089 ppb	4.47	2.00	0.80	
137 Ba	2 115	0.028 ppb	22.38	2.00	3.00	
205 Tl	2 209	0.106 ppb	2.77	2.00	0.50	
208 Pb	2 209	-0.011 ppb	8.48	0.40	0.30	

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	294120.41	3.40	3.40	301176.25	97.7	70 -	120	
45 Sc	1	15645.28	1.44	1.44	11387.52	137.4	70 -	120	ISFail
45 Sc	2	685907.19	3.10	3.10	569049.13	120.5	70 -	120	ISFail
72 Ge	1	9610.05	2.52	2.52	7050.31	136.3	70 -	120	ISFail
115 In	2	687956.81	3.94	3.94	536581.75	128.2	70 -	120	ISFail
209 Bi	2	511322.13	5.40	5.40	414466.09	123.4	70 -	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\055CCV1.D\055CCV1.D#

Date Acquired: Jul 18 2012 04:03 pm Sample Name:
 Acq. Method: DHL_3.m Misc Info:
 Operator: AR Diln Factor:
 Last Cal. Update: Jul 18 2012 11:29 am
 Instrument: ICPMS3

CCV2-120717
 CCV ICPMS_TW

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2 45	149.90 ppb	2.87	200.00	90 - 110	75.0	Fail
9 Be	2 45	171.80 ppb	2.90	200.00	90 - 110	85.9	Fail
11 B	2 45	240.00 ppb	3.23	200.00	90 - 110	120.0	Fail
23 Na	1 45	5107.00 ppb	1.79	5000.00	90 - 110	102.1	
24 Mg	1 45	5010.00 ppb	1.49	5000.00	90 - 110	100.2	
27 Al	1 45	4883.00 ppb	1.45	5000.00	90 - 110	97.7	
39 K	1 45	5222.00 ppb	1.40	5000.00	90 - 110	104.4	
44 Ca	2 45	5261.00 ppb	3.07	5000.00	90 - 110	105.2	
47 Ti	1 45	207.10 ppb	3.73	200.00	90 - 110	103.6	
51 V	1 45	211.00 ppb	1.12	200.00	90 - 110	105.5	
52 Cr	1 45	212.90 ppb	0.48	200.00	90 - 110	106.5	
55 Mn	1 45	216.70 ppb	1.74	200.00	90 - 110	108.4	
56 Fe	1 72	4990.00 ppb	2.26	5000.00	90 - 110	99.8	
59 Co	1 72	201.20 ppb	0.54	200.00	90 - 110	100.6	
60 Ni	1 72	201.60 ppb	0.34	200.00	90 - 110	100.8	
63 Cu	1 72	201.60 ppb	0.58	200.00	90 - 110	100.8	
66 Zn	1 72	207.60 ppb	1.41	200.00	90 - 110	103.8	
75 As	1 72	209.00 ppb	0.76	200.00	90 - 110	104.5	
78 Se	1 72	212.60 ppb	1.51	200.00	90 - 110	106.3	
88 Sr	2 115	205.50 ppb	2.35	200.00	90 - 110	102.8	
95 Mo	2 115	202.20 ppb	3.83	200.00	90 - 110	101.1	
107 Ag	2 115	198.40 ppb	3.75	200.00	90 - 110	99.2	
111 Cd	2 115	205.10 ppb	3.27	200.00	90 - 110	102.6	
118 Sn	2 115	205.50 ppb	3.78	200.00	90 - 110	102.8	
121 Sb	2 115	201.50 ppb	3.76	200.00	90 - 110	100.8	
137 Ba	2 115	202.50 ppb	4.36	200.00	90 - 110	101.3	
205 Tl	2 209	212.30 ppb	6.14	200.00	90 - 110	106.2	
208 Pb	2 209	206.20 ppb	4.68	200.00	90 - 110	103.1	

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2		178550.00	3.15	301176.25	59.3	70 -	120	ISFail
45 Sc	1		14010.94	1.95	11387.52	123.0	70 -	120	ISFail
45 Sc	2		622812.56	2.84	569049.13	109.4	70 -	120	
72 Ge	1		9015.84	2.14	7050.31	127.9	70 -	120	ISFail
115 In	2		707411.88	3.47	536581.75	131.8	70 -	120	ISFail
209 Bi	2		528758.63	5.64	414466.09	127.6	70 -	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\057CCV1.D\057CCV1.D#

Date Acquired:	Jul 18 2012 04:16 pm	Sample Name:	CCV2-120717
Acq. Method:	DHL_3.m	Misc Info:	CCV ICPMS_TW
Operator:	AR	Diln Factor:	1.00
Last Cal. Update:	Jul 18 2012 11:29 am		
Instrument:	ICPMS3		

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2 45	168.20 ppb	3.75	200.00	90 - 110	84.1	Fail
9 Be	2 45	190.50 ppb	4.91	200.00	90 - 110	95.3	
11 B	2 45	220.60 ppb	5.48	200.00	90 - 110	110.3	Fail
23 Na	1 45	5437.00 ppb	2.24	5000.00	90 - 110	108.7	
24 Mg	1 45	5321.00 ppb	0.71	5000.00	90 - 110	106.4	
27 Al	1 45	5558.00 ppb	0.60	5000.00	90 - 110	111.2	Fail
39 K	1 45	5658.00 ppb	1.35	5000.00	90 - 110	113.2	Fail
44 Ca	2 45	5739.00 ppb	5.22	5000.00	90 - 110	114.8	Fail
47 Ti	1 45	220.70 ppb	1.21	200.00	90 - 110	110.4	Fail
51 V	1 45	221.90 ppb	0.41	200.00	90 - 110	111.0	Fail
52 Cr	1 45	222.00 ppb	0.16	200.00	90 - 110	111.0	Fail
55 Mn	1 45	231.60 ppb	0.91	200.00	90 - 110	115.8	Fail
56 Fe	1 72	5423.00 ppb	1.75	5000.00	90 - 110	108.5	
59 Co	1 72	214.70 ppb	0.20	200.00	90 - 110	107.4	
60 Ni	1 72	214.00 ppb	0.75	200.00	90 - 110	107.0	
63 Cu	1 72	214.00 ppb	0.21	200.00	90 - 110	107.0	
66 Zn	1 72	220.40 ppb	0.86	200.00	90 - 110	110.2	Fail
75 As	1 72	222.60 ppb	0.56	200.00	90 - 110	111.3	Fail
78 Se	1 72	232.50 ppb	1.02	200.00	90 - 110	116.3	Fail
88 Sr	2 115	221.60 ppb	4.43	200.00	90 - 110	110.8	Fail
95 Mo	2 115	222.10 ppb	4.42	200.00	90 - 110	111.1	Fail
107 Ag	2 115	215.40 ppb	5.30	200.00	90 - 110	107.7	
111 Cd	2 115	218.90 ppb	4.65	200.00	90 - 110	109.5	
118 Sn	2 115	220.60 ppb	4.18	200.00	90 - 110	110.3	Fail
121 Sb	2 115	216.60 ppb	4.19	200.00	90 - 110	108.3	
137 Ba	2 115	218.70 ppb	4.79	200.00	90 - 110	109.4	
205 Tl	2 209	236.40 ppb	5.18	200.00	90 - 110	118.2	Fail
208 Pb	2 209	223.20 ppb	5.13	200.00	90 - 110	111.6	Fail

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	187006.83	2.96	301176.25		62.1	70 -	120	ISFail
45 Sc	1	14646.70	0.68	11387.52		128.6	70 -	120	ISFail
45 Sc	2	638037.13	4.46	569049.13		112.1	70 -	120	
72 Ge	1	9209.96	0.58	7050.31		130.6	70 -	120	ISFail
115 In	2	712159.13	4.97	536581.75		132.7	70 -	120	ISFail
209 Bi	2	530182.31	5.33	414466.09		127.9	70 -	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\060LCVL.D\060LCVL.D#

Date Acquired: Jul 18 2012 04:39 pm Sample Name: **LCVL2-120717**
 Acq. Method: DHL_3.m Misc Info: LCVL6020A_W
 Operator: AR Diln Factor: 1.00
 Last Cal. Update: Jul 18 2012 11:29 am
 Instrument: ICPMS3

QC Elements

Element		Conc.	RSD (%)	Expected QC	Range (%)	Rec (%)	Flag
7 Li	2 45	2.59 ppb	3.22	5.00	80 - 120	51.7	Fail
9 Be	2 45	0.82 ppb	8.31	1.00	80 - 120	81.7	
11 B	2 45	34.35 ppb	2.62	5.00	80 - 120	687.0	Fail
23 Na	1 45	78.36 ppb	0.77	100.00	80 - 120	78.4	Fail
24 Mg	1 45	97.59 ppb	1.66	100.00	80 - 120	97.6	
27 Al	1 45	93.35 ppb	2.31	100.00	80 - 120	93.4	
39 K	1 45	93.47 ppb	1.65	100.00	80 - 120	93.5	
44 Ca	2 45	97.12 ppb	1.75	100.00	80 - 120	97.1	
47 Ti	1 45	5.26 ppb	10.24	5.00	80 - 120	105.1	
51 V	1 45	1.06 ppb	4.81	1.00	80 - 120	105.9	
52 Cr	1 45	4.94 ppb	2.02	5.00	80 - 120	98.7	
55 Mn	1 45	5.18 ppb	1.95	5.00	80 - 120	103.6	
56 Fe	1 72	112.50 ppb	1.84	100.00	80 - 120	112.5	
59 Co	1 72	4.80 ppb	0.14	5.00	80 - 120	96.0	
60 Ni	1 72	4.75 ppb	1.27	5.00	80 - 120	95.0	
63 Cu	1 72	4.82 ppb	2.09	5.00	80 - 120	96.4	
66 Zn	1 72	4.67 ppb	4.94	5.00	80 - 120	93.5	
75 As	1 72	4.83 ppb	3.14	5.00	80 - 120	96.6	
78 Se	1 72	4.84 ppb	9.55	5.00	80 - 120	96.9	
88 Sr	2 115	4.87 ppb	3.26	5.00	80 - 120	97.3	
95 Mo	2 115	5.08 ppb	2.72	5.00	80 - 120	101.7	
107 Ag	2 115	1.94 ppb	3.34	2.00	80 - 120	97.0	
111 Cd	2 115	0.95 ppb	5.91	1.00	80 - 120	94.7	
118 Sn	2 115	4.92 ppb	4.96	5.00	80 - 120	98.4	
121 Sb	2 115	2.05 ppb	3.61	2.00	80 - 120	102.7	
137 Ba	2 115	4.75 ppb	3.71	5.00	80 - 120	94.9	
205 Tl	2 209	1.12 ppb	4.24	1.00	80 - 120	112.0	
208 Pb	2 209	0.97 ppb	4.63	1.00	80 - 120	96.5	

ISTD Elements

Element		CPS	Mean	RSD (%)	Ref Value	Rec (%)	QC	Range (%)	Flag
6 Li	2	251695.94	1.86	301176.25		83.6	70 -	120	
45 Sc	1	15528.69	1.19	11387.52		136.4	70 -	120	ISFail
45 Sc	2	663653.31	3.05	569049.13		116.6	70 -	120	
72 Ge	1	9715.26	0.59	7050.31		137.8	70 -	120	ISFail
115 In	2	720310.56	4.16	536581.75		134.2	70 -	120	ISFail
209 Bi	2	540226.63	5.01	414466.09		130.3	70 -	120	ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\063_CCB.D\063_CCB.D#

Date Acquired:	Jul 18 2012 04:56 pm	Sample Name:	CCB2-120717
Acq. Method:	DHL_3.m	Misc Info:	CCB ICPMS_TW
Operator:	AR	Diln Factor:	1.00
Last Cal. Update:	Jul 18 2012 11:29 am		
Instrument:	ICPMS3		

QC Elements

Element		Conc.	RSD(%)	MDL S	MDL Aq	Flag
7 Li	2 45	-1.213 ppb	2.20	2.00	2.00	
9 Be	2 45	-0.071 ppb	37.96	0.10	0.30	
11 B	2 45	12.330 ppb	3.56	10.00	10.00	Failsoil
23 Na	1 45	-20.500 ppb	1.43	50.00	#####	
24 Mg	1 45	2.753 ppb	7.63	50.00	#####	
27 Al	1 45	0.759 ppb	4.81	50.00	10.00	
39 K	1 45	-10.790 ppb	7.56	50.00	#####	
44 Ca	2 45	-3.483 ppb	4.56	50.00	#####	
47 Ti	1 45	0.011 ppb	99.97	4.00	3.00	
51 V	1 45	0.006 ppb	7.00	4.00	3.00	
52 Cr	1 45	-0.015 ppb	2.13	2.00	2.00	
55 Mn	1 45	0.050 ppb	12.50	2.00	3.00	
56 Fe	1 72	2.427 ppb	1.15	50.00	50.00	
59 Co	1 72	-0.004 ppb	12.17	2.00	3.00	
60 Ni	1 72	-0.059 ppb	5.12	2.00	3.00	
63 Cu	1 72	0.003 ppb	4.34	2.00	2.00	
66 Zn	1 72	-0.287 ppb	20.46	4.00	2.00	
75 As	1 72	-0.061 ppb	2.47	2.00	2.00	
78 Se	1 72	-0.057 ppb	11.25	0.60	2.00	
88 Sr	2 115	0.037 ppb	12.72	4.00	3.00	
95 Mo	2 115	0.095 ppb	1.51	2.00	2.00	
107 Ag	2 115	0.013 ppb	13.32	0.40	1.00	
111 Cd	2 115	-0.039 ppb	62.36	0.40	0.30	
118 Sn	2 115	-0.117 ppb	11.10	4.00	3.00	
121 Sb	2 115	0.035 ppb	6.73	2.00	0.80	
137 Ba	2 115	0.006 ppb	5.73	2.00	3.00	
205 Tl	2 209	0.055 ppb	10.87	2.00	0.50	
208 Pb	2 209	-0.020 ppb	5.90	0.40	0.30	

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	254546.09	3.26	301176.25	84.5	70 -	120	
45 Sc	1	15099.08	1.45	11387.52	132.6	70 -	120	ISFail
45 Sc	2	674622.44	3.30	569049.13	118.6	70 -	120	
72 Ge	1	9657.00	3.43	7050.31	137.0	70 -	120	ISFail
115 In	2	728483.31	2.88	536581.75	135.8	70 -	120	ISFail
209 Bi	2	542322.94	4.83	414466.09	130.8	70 -	120	ISFail

PB QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\064__PB.D\064__PB.D#

Date Acquired:	Jul 18 2012 05:02 pm	Sample Name:	MB-52758
Acq. Method:	DHL_3.m	Misc Info:	MBLK6020A_W
Operator:	AR	Bench Diln:	1.00
Last Cal. Update:	Jul 18 2012 11:29 am	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element		Conc.	RSD (%)	MDL	RL	Flag
7 Li	2 45	-1.212 ppb	2.50	2.0	5.00	
9 Be	2 45	-0.078 ppb	22.91	0.3	0.80	
11 B	2 45	8.486 ppb	1.81	10.0	30.00	
23 Na	1 45	-14.990 ppb	1.35	100.0	#####	
24 Mg	1 45	4.152 ppb	6.90	100.0	#####	
27 Al	1 45	-0.145 ppb	15.46	10.0	30.00	
39 K	1 45	-8.921 ppb	4.19	100.0	#####	
44 Ca	2 45	-5.046 ppb	0.56	100.0	#####	
47 Ti	1 45	0.042 ppb	43.30	3.0	10.00	
51 V	1 45	0.010 ppb	13.88	3.0	10.00	
52 Cr	1 45	-0.031 ppb	8.39	2.0	5.00	
55 Mn	1 45	0.089 ppb	11.62	3.0	10.00	
56 Fe	1 72	6.704 ppb	3.43	50.0	#####	
59 Co	1 72	-0.013 ppb	40.24	3.0	10.00	
60 Ni	1 72	-0.098 ppb	14.66	3.0	10.00	
63 Cu	1 72	0.177 ppb	2.92	2.0	10.00	
66 Zn	1 72	1.409 ppb	10.92	2.0	5.00	
75 As	1 72	-0.078 ppb	12.48	2.0	5.00	
78 Se	1 72	-0.089 ppb	8.44	2.0	5.00	
88 Sr	2 115	0.045 ppb	4.31	3.0	10.00	
95 Mo	2 115	0.039 ppb	14.85	2.0	5.00	
107 Ag	2 115	0.010 ppb	27.13	1.0	2.00	
111 Cd	2 115	-0.049 ppb	70.70	0.3	1.00	
118 Sn	2 115	-0.101 ppb	6.47	3.0	10.00	
121 Sb	2 115	0.089 ppb	11.24	0.8	2.50	
137 Ba	2 115	0.124 ppb	23.18	3.0	10.00	
205 Tl	2 209	0.026 ppb	6.12	0.5	1.50	
208 Pb	2 209	0.008 ppb	5.27	0.3	1.00	

ISTD Elements

Element	CPS	Mean	RSD (%)	Ref Value	Rec (%)	QC Range (%)	Flag
6 Li	2	256205.23	3.04	301176.25	85.1	70 - 120	
45 Sc	1	14838.98	2.29	11387.52	130.3	70 - 120	ISFail
45 Sc	2	667335.75	2.79	569049.13	117.3	70 - 120	
72 Ge	1	9685.91	2.55	7050.31	137.4	70 - 120	ISFail
115 In	2	729868.31	4.23	536581.75	136.0	70 - 120	ISFail
209 Bi	2	546410.56	4.84	414466.09	131.8	70 - 120	ISFail

LCS QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\065_LCS.D\065_LCS.D#

Date Acquired: Jul 18 2012 05:08 pm Sample Name: **LCS-52758**
 Acq. Method: DHL_3.m Misc Info: LCS 6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:29 am Auto Dil: Undiluted
 Instrument: ICPMS3 Total Dil: 1.00

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2	45	156.10 ppb	2.82	200.00	80 -	120 78.1 Fail
9 Be	2	45	171.30 ppb	2.79	200.00	80 -	120 85.7
11 B	2	45	164.20 ppb	3.98	200.00	80 -	120 82.1
23 Na	1	45	4632.00 ppb	0.57	5000.00	80 -	120 92.6
24 Mg	1	45	4592.00 ppb	0.57	5000.00	80 -	120 91.8
27 Al	1	45	4604.00 ppb	0.85	5000.00	80 -	120 92.1
39 K	1	45	4814.00 ppb	0.56	5000.00	80 -	120 96.3
44 Ca	2	45	4890.00 ppb	4.42	5000.00	80 -	120 97.8
47 Ti	1	45	198.10 ppb	1.18	200.00	80 -	120 99.1
51 V	1	45	194.80 ppb	0.42	200.00	80 -	120 97.4
52 Cr	1	45	195.60 ppb	0.54	200.00	80 -	120 97.8
55 Mn	1	45	202.00 ppb	1.75	200.00	80 -	120 101.0
56 Fe	1	72	4718.00 ppb	2.40	5000.00	80 -	120 94.4
59 Co	1	72	189.90 ppb	0.47	200.00	80 -	120 95.0
60 Ni	1	72	189.00 ppb	0.18	200.00	80 -	120 94.5
63 Cu	1	72	189.60 ppb	1.17	200.00	80 -	120 94.8
66 Zn	1	72	192.60 ppb	1.52	200.00	80 -	120 96.3
75 As	1	72	194.80 ppb	0.25	200.00	80 -	120 97.4
78 Se	1	72	198.60 ppb	1.83	200.00	80 -	120 99.3
88 Sr	2	115	196.40 ppb	4.02	200.00	80 -	120 98.2
95 Mo	2	115	190.10 ppb	3.84	200.00	80 -	120 95.1
107 Ag	2	115	188.40 ppb	3.86	200.00	80 -	120 94.2
111 Cd	2	115	195.20 ppb	2.73	200.00	80 -	120 97.6
118 Sn	2	115	196.60 ppb	3.91	200.00	80 -	120 98.3
121 Sb	2	115	190.30 ppb	3.87	200.00	80 -	120 95.2
137 Ba	2	115	190.70 ppb	3.96	200.00	80 -	120 95.4
205 Tl	2	209	200.40 ppb	5.39	200.00	80 -	120 100.2
208 Pb	2	209	196.00 ppb	4.59	200.00	80 -	120 98.0

ISTD Elements

Element		CPS	Mean RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2	209321.94	5.10	301176.25	69.5	70 -	120 ISFail
45 Sc	1	14491.95	0.94	11387.52	127.3	70 -	120 ISFail
45 Sc	2	647402.38	3.78	569049.13	113.8	70 -	120
72 Ge	1	9083.68	1.88	7050.31	128.8	70 -	120 ISFail
115 In	2	695557.13	4.40	536581.75	129.6	70 -	120 ISFail
209 Bi	2	516264.63	5.14	414466.09	124.6	70 -	120 ISFail

LCS QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\066_LCS.D\066_LCS.D#

Date Acquired: Jul 18 2012 05:13 pm Sample Name: **LCSD-52758**
 Acq. Method: DHL_3.m Misc Info: LCSD6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:29 am Auto Dil: Undiluted
 Instrument: ICPMS3 Total Dil: 1.00

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2	45	158.40 ppb	4.45	200.00	80 -	120 79.2 Fail
9 Be	2	45	175.30 ppb	3.85	200.00	80 -	120 87.7
11 B	2	45	166.40 ppb	3.12	200.00	80 -	120 83.2
23 Na	1	45	4950.00 ppb	3.01	5000.00	80 -	120 99.0
24 Mg	1	45	4876.00 ppb	1.33	5000.00	80 -	120 97.5
27 Al	1	45	4861.00 ppb	1.55	5000.00	80 -	120 97.2
39 K	1	45	5088.00 ppb	1.51	5000.00	80 -	120 101.8
44 Ca	2	45	4960.00 ppb	3.98	5000.00	80 -	120 99.2
47 Ti	1	45	206.50 ppb	3.66	200.00	80 -	120 103.3
51 V	1	45	206.00 ppb	1.18	200.00	80 -	120 103.0
52 Cr	1	45	207.30 ppb	1.85	200.00	80 -	120 103.7
55 Mn	1	45	212.40 ppb	2.12	200.00	80 -	120 106.2
56 Fe	1	72	4948.00 ppb	2.13	5000.00	80 -	120 99.0
59 Co	1	72	199.00 ppb	0.27	200.00	80 -	120 99.5
60 Ni	1	72	197.70 ppb	0.91	200.00	80 -	120 98.9
63 Cu	1	72	198.80 ppb	1.40	200.00	80 -	120 99.4
66 Zn	1	72	204.60 ppb	1.29	200.00	80 -	120 102.3
75 As	1	72	203.60 ppb	1.55	200.00	80 -	120 101.8
78 Se	1	72	209.00 ppb	0.23	200.00	80 -	120 104.5
88 Sr	2	115	203.20 ppb	3.08	200.00	80 -	120 101.6
95 Mo	2	115	198.20 ppb	3.91	200.00	80 -	120 99.1
107 Ag	2	115	192.00 ppb	4.73	200.00	80 -	120 96.0
111 Cd	2	115	198.40 ppb	3.99	200.00	80 -	120 99.2
118 Sn	2	115	200.60 ppb	4.23	200.00	80 -	120 100.3
121 Sb	2	115	194.80 ppb	3.71	200.00	80 -	120 97.4
137 Ba	2	115	194.30 ppb	3.74	200.00	80 -	120 97.2
205 Tl	2	209	205.90 ppb	6.46	200.00	80 -	120 103.0
208 Pb	2	209	200.30 ppb	5.01	200.00	80 -	120 100.2

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref	Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	204248.23	5.35	301176.25		67.8	70 -	120		ISFail
45 Sc	1	13816.91	5.16	11387.52		121.3	70 -	120		ISFail
45 Sc	2	645011.06	3.50	569049.13		113.3	70 -	120		
72 Ge	1	8769.65	3.10	7050.31		124.4	70 -	120		ISFail
115 In	2	699820.88	5.02	536581.75		130.4	70 -	120		ISFail
209 Bi	2	520027.81	4.38	414466.09		125.5	70 -	120		ISFail

DT QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\069DT1.D\069DT1.D#

Date Acquired: Jul 18 2012 05:30 pm Sample Name: **1207123-03B SD**
 Acq. Method: DHL_3.m Misc Info: SD 6020A_W
 Operator: AR Bench Diln: 5.00
 Last Cal. Update: Jul 18 2012 11:29 am Auto Diln: Undiluted
 Instrument: ICPMS3 Total Diln: 5.00

QC Elements

Element	Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2 45	19.86 ppb	1.73 230563.75	90 - 110	0.0	
9 Be	2 45	0.53 ppb	6.97 2.41	90 - 110	109.4 GOOD	
11 B	2 45	14.91 ppb	1.72 48.09	90 - 110	155.0	
23 Na	1 45	1116.00 ppb	1.14 5513.00	90 - 110	101.2 GOOD	
24 Mg	1 45	1158.00 ppb	0.71 5618.00	90 - 110	103.1 GOOD	
27 Al	1 45	509.00 ppb	2.36 2500.00	90 - 110	101.8 GOOD	
39 K	1 45	534.00 ppb	0.77 2664.00	90 - 110	100.2 GOOD	
44 Ca	2 45	1349.00 ppb	3.47 6571.00	90 - 110	102.6 GOOD	
47 Ti	1 45	0.87 ppb	36.33 6.55	90 - 110	66.6	
51 V	1 45	1.19 ppb	7.03 5.08	90 - 110	116.7	
52 Cr	1 45	0.70 ppb	3.98 3.15	90 - 110	110.6	
55 Mn	1 45	29.14 ppb	1.85 143.10	90 - 110	101.8 GOOD	
56 Fe	1 72	1198.00 ppb	1.85 4958.00	90 - 110	120.8	
59 Co	1 72	5.56 ppb	1.97 26.71	90 - 110	104.0 GOOD	
60 Ni	1 72	8.60 ppb	1.48 40.87	90 - 110	105.2 GOOD	
63 Cu	1 72	0.34 ppb	2.81 1.12	90 - 110	151.3	
66 Zn	1 72	27.06 ppb	0.49 132.30	90 - 110	102.3 GOOD	
75 As	1 72	0.19 ppb	8.29 0.98	90 - 110	94.3 GOOD	
78 Se	1 72	0.53 ppb	6.24 2.00	90 - 110	132.5	
88 Sr	2 115	35.06 ppb	3.12 175.30	90 - 110	100.0 GOOD	
95 Mo	2 115	0.33 ppb	8.03 0.49	90 - 110	332.6	
107 Ag	2 115	0.06 ppb	21.87 0.09	90 - 110	332.1	
111 Cd	2 115	0.07 ppb	6.59 0.31	90 - 110	109.1 GOOD	
118 Sn	2 115	0.04 ppb	10.07 0.22	90 - 110	99.4 GOOD	
121 Sb	2 115	0.04 ppb	8.25 0.13	90 - 110	150.7	
137 Ba	2 115	19.46 ppb	5.43 96.61	90 - 110	100.7 GOOD	
205 Tl	2 209	0.28 ppb	8.01 0.56	90 - 110	254.1	
208 Pb	2 209	0.58 ppb	7.76 2.72	90 - 110	106.6 GOOD	

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2	230563.75	2.58	301176.25	76.6	70 - 120	
45 Sc	1	13790.61	0.98	11387.52	121.1	70 - 120	ISFail
45 Sc	2	625794.25	2.96	569049.13	110.0	70 - 120	
72 Ge	1	8868.38	0.83	7050.31	125.8	70 - 120	ISFail
115 In	2	685168.06	3.33	536581.75	127.7	70 - 120	ISFail
209 Bi	2	518567.84	4.71	414466.09	125.1	70 - 120	ISFail

PDS QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\079_PDS.D\079_PDS.D#

Date Acquired:	Jul 18 2012 06:26 pm	Sample Name:	1207123-03B PDS
Acq. Method:	DHL_3.m	Misc Info:	PDS 6020A_W
Operator:	AR	Bench Diln:	1.00
Last Cal. Update:	Jul 18 2012 11:29 am	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element		Conc.	RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7 Li	2 45	229.60 ppb	3.18	169955.31	200	75-125	#####	Fail
9 Be	2 45	165.80 ppb	3.17	2.41	200	75-125	81.7	
11 B	2 45	199.70 ppb	2.63	48.09	200	75-125	75.8	
23 Na	1 45	10700.00 ppb	2.24	5513.00	5000	75-125	103.7	
24 Mg	1 45	10740.00 ppb	1.61	5618.00	5000	75-125	102.4	
27 Al	1 45	7387.00 ppb	1.95	2500.00	5000	75-125	97.7	
39 K	1 45	8039.00 ppb	1.44	2664.00	5000	75-125	107.5	
44 Ca	2 45	11390.00 ppb	2.02	6571.00	5000	75-125	96.4	
47 Ti	1 45	215.10 ppb	4.80	6.55	200	75-125	104.3	
51 V	1 45	213.60 ppb	1.32	5.08	200	75-125	104.3	
52 Cr	1 45	216.80 ppb	0.97	3.15	200	75-125	106.8	
55 Mn	1 45	356.60 ppb	2.08	143.10	200	75-125	106.7	
56 Fe	1 72	9757.00 ppb	1.36	4958.00	5000	75-125	96.0	
59 Co	1 72	226.10 ppb	1.49	26.71	200	75-125	99.7	
60 Ni	1 72	238.30 ppb	1.03	40.87	200	75-125	98.7	
63 Cu	1 72	196.70 ppb	0.63	1.12	200	75-125	97.8	
66 Zn	1 72	332.50 ppb	1.23	132.30	200	75-125	100.1	
75 As	1 72	201.50 ppb	0.68	0.98	200	75-125	100.3	
78 Se	1 72	208.40 ppb	1.48	2.00	200	75-125	103.2	
88 Sr	2 115	371.00 ppb	2.58	175.30	200	75-125	97.9	
95 Mo	2 115	198.80 ppb	3.75	0.49	200	75-125	99.2	
107 Ag	2 115	193.80 ppb	3.94	0.09	200	75-125	96.9	
111 Cd	2 115	202.20 ppb	4.53	0.31	200	75-125	100.9	
118 Sn	2 115	216.10 ppb	4.08	0.22	200	75-125	107.9	
121 Sb	2 115	182.80 ppb	4.38	0.13	200	75-125	91.3	
137 Ba	2 115	295.20 ppb	4.25	96.61	200	75-125	99.3	
205 Tl	2 209	217.10 ppb	3.61	0.56	200	75-125	108.3	
208 Pb	2 209	207.60 ppb	5.41	2.72	200	75-125	102.4	

ISTD Elements

Element		CPS	Mean RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	169955.31	3.41	301176.25	56.4	70 -	120	ISFail
45 Sc	1	13424.22	1.71	11387.52	117.9	70 -	120	
45 Sc	2	629945.50	3.67	569049.13	110.7	70 -	120	
72 Ge	1	8665.12	1.48	7050.31	122.9	70 -	120	ISFail
115 In	2	706443.50	4.00	536581.75	131.7	70 -	120	ISFail
209 Bi	2	525608.38	5.58	414466.09	126.8	70 -	120	ISFail

MS/MSD QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\080_MS.D\080_MS.D#

Date Acquired: Jul 18 2012 06:32 pm Sample Name: **1207123-03B MS**
 Acq. Method: DHL_3.m Misc Info: MS 6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:29 am Auto Diln: Undiluted
 Instrument: ICPMS3 Total Diln: 1.00

QC Elements

Element	Conc.	RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7 Li	2 45	228.40 ppb	3.04 #####	200	80-120	#####	Fail
9 Be	2 45	163.70 ppb	3.23 2.41	200	80-120	80.6	
11 B	2 45	197.40 ppb	2.29 48.09	200	80-120	74.7	Fail
23 Na	1 45	10620.00 ppb	0.97 5513.00	5000	80-120	102.1	
24 Mg	1 45	10530.00 ppb	0.78 5618.00	5000	80-120	98.2	
27 Al	1 45	7269.00 ppb	1.86 2500.00	5000	80-120	95.4	
39 K	1 45	7819.00 ppb	0.90 2664.00	5000	80-120	103.1	
44 Ca	2 45	11210.00 ppb	2.11 6571.00	5000	80-120	92.8	
47 Ti	1 45	215.10 ppb	6.02 6.55	200	80-120	104.3	
51 V	1 45	212.30 ppb	1.13 5.08	200	80-120	103.6	
52 Cr	1 45	212.30 ppb	0.61 3.15	200	80-120	104.6	
55 Mn	1 45	361.50 ppb	1.46 143.10	200	80-120	109.2	
56 Fe	1 72	9514.00 ppb	1.60 4958.00	5000	80-120	91.1	
59 Co	1 72	218.30 ppb	0.61 26.71	200	80-120	95.8	
60 Ni	1 72	231.20 ppb	0.82 40.87	200	80-120	95.2	
63 Cu	1 72	193.80 ppb	0.35 1.12	200	80-120	96.3	
66 Zn	1 72	325.70 ppb	1.15 132.30	200	80-120	96.7	
75 As	1 72	201.00 ppb	1.16 0.98	200	80-120	100.0	
78 Se	1 72	203.80 ppb	2.24 2.00	200	80-120	100.9	
88 Sr	2 115	372.90 ppb	2.05 175.30	200	80-120	98.8	
95 Mo	2 115	201.00 ppb	2.73 0.49	200	80-120	100.3	
107 Ag	2 115	195.40 ppb	3.74 0.09	200	80-120	97.7	
111 Cd	2 115	202.40 ppb	3.21 0.31	200	80-120	101.0	
118 Sn	2 115	209.60 ppb	2.95 0.22	200	80-120	104.7	
121 Sb	2 115	201.40 ppb	3.23 0.13	200	80-120	100.6	
137 Ba	2 115	296.90 ppb	3.82 96.61	200	80-120	100.1	
205 Tl	2 209	213.60 ppb	3.99 0.56	200	80-120	106.5	
208 Pb	2 209	207.50 ppb	4.32 2.72	200	80-120	102.4	

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2	152566.92	2.25	301176.25	50.7	70 - 120	ISFail
45 Sc	1	13733.45	2.28	11387.52	120.6	70 - 120	ISFail
45 Sc	2	642116.31	3.16	569049.13	112.8	70 - 120	
72 Ge	1	9074.54	1.75	7050.31	128.7	70 - 120	ISFail
115 In	2	727676.06	3.04	536581.75	135.6	70 - 120	ISFail
209 Bi	2	546003.06	4.44	414466.09	131.7	70 - 120	ISFail

MS/MSD QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\081_MS.D\081_MS.D#

Date Acquired: Jul 18 2012 06:37 pm Sample Name: **1207123-03B MSD**
 Acq. Method: DHL_3.m Misc Info: MSD 6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:29 am Auto Diln: Undiluted
 Instrument: ICPMS3 Total Diln: 1.00

QC Elements

Element	Conc.	RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7 Li	2 45	230.70 ppb	2.14 #####	200	80-120	#####	Fail
9 Be	2 45	167.10 ppb	3.08 2.41	200	80-120	82.3	
11 B	2 45	198.20 ppb	2.91 48.09	200	80-120	75.1	Fail
23 Na	1 45	10580.00 ppb	1.34 5513.00	5000	80-120	101.3	
24 Mg	1 45	10560.00 ppb	1.36 5618.00	5000	80-120	98.8	
27 Al	1 45	7325.00 ppb	2.41 2500.00	5000	80-120	96.5	
39 K	1 45	7860.00 ppb	1.83 2664.00	5000	80-120	103.9	
44 Ca	2 45	11440.00 ppb	3.13 6571.00	5000	80-120	97.4	
47 Ti	1 45	207.30 ppb	6.32 6.55	200	80-120	100.4	
51 V	1 45	214.10 ppb	1.39 5.08	200	80-120	104.5	
52 Cr	1 45	212.00 ppb	1.37 3.15	200	80-120	104.4	
55 Mn	1 45	362.50 ppb	2.44 143.10	200	80-120	109.7	
56 Fe	1 72	9665.00 ppb	1.80 4958.00	5000	80-120	94.1	
59 Co	1 72	223.20 ppb	0.54 26.71	200	80-120	98.2	
60 Ni	1 72	236.30 ppb	0.97 40.87	200	80-120	97.7	
63 Cu	1 72	196.80 ppb	0.79 1.12	200	80-120	97.8	
66 Zn	1 72	335.60 ppb	0.69 132.30	200	80-120	101.7	
75 As	1 72	206.70 ppb	0.84 0.98	200	80-120	102.9	
78 Se	1 72	209.30 ppb	2.64 2.00	200	80-120	103.7	
88 Sr	2 115	381.00 ppb	3.27 175.30	200	80-120	102.9	
95 Mo	2 115	205.10 ppb	4.43 0.49	200	80-120	102.3	
107 Ag	2 115	199.10 ppb	2.40 0.09	200	80-120	99.5	
111 Cd	2 115	209.30 ppb	3.16 0.31	200	80-120	104.5	
118 Sn	2 115	215.60 ppb	2.95 0.22	200	80-120	107.7	
121 Sb	2 115	204.80 ppb	2.75 0.13	200	80-120	102.3	
137 Ba	2 115	306.90 ppb	2.56 96.61	200	80-120	105.1	
205 Tl	2 209	219.40 ppb	3.94 0.56	200	80-120	109.4	
208 Pb	2 209	211.40 ppb	4.17 2.72	200	80-120	104.3	

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	146577.31	2.66	301176.25	48.7	70 -	120	ISFail
45 Sc	1	14376.17	0.90	11387.52	126.2	70 -	120	ISFail
45 Sc	2	634647.81	3.26	569049.13	111.5	70 -	120	
72 Ge	1	9297.82	1.45	7050.31	131.9	70 -	120	ISFail
115 In	2	733464.38	3.48	536581.75	136.7	70 -	120	ISFail
209 Bi	2	554701.38	4.23	414466.09	133.8	70 -	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\082CCV1.D\082CCV1.D#

Date Acquired: Jul 18 2012 06:43 pm Sample Name:
 Acq. Method: DHL_3.m Misc Info:
 Operator: AR Diln Factor:
 Last Cal. Update: Jul 18 2012 11:29 am
 Instrument: ICPMS3

CCV3-120718
 CCV ICPMS_TW

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2 45	148.50 ppb	3.09	200.00	90 - 110	74.3	Fail
9 Be	2 45	178.60 ppb	2.59	200.00	90 - 110	89.3	Fail
11 B	2 45	175.00 ppb	2.62	200.00	90 - 110	87.5	Fail
23 Na	1 45	5279.00 ppb	1.52	5000.00	90 - 110	105.6	
24 Mg	1 45	5155.00 ppb	1.43	5000.00	90 - 110	103.1	
27 Al	1 45	5091.00 ppb	1.86	5000.00	90 - 110	101.8	
39 K	1 45	5394.00 ppb	0.37	5000.00	90 - 110	107.9	
44 Ca	2 45	5547.00 ppb	2.67	5000.00	90 - 110	110.9	Fail
47 Ti	1 45	214.60 ppb	2.07	200.00	90 - 110	107.3	
51 V	1 45	216.10 ppb	1.04	200.00	90 - 110	108.1	
52 Cr	1 45	216.80 ppb	0.69	200.00	90 - 110	108.4	
55 Mn	1 45	227.20 ppb	1.86	200.00	90 - 110	113.6	Fail
56 Fe	1 72	5107.00 ppb	1.21	5000.00	90 - 110	102.1	
59 Co	1 72	203.20 ppb	0.62	200.00	90 - 110	101.6	
60 Ni	1 72	204.50 ppb	1.00	200.00	90 - 110	102.3	
63 Cu	1 72	203.60 ppb	0.67	200.00	90 - 110	101.8	
66 Zn	1 72	213.40 ppb	0.75	200.00	90 - 110	106.7	
75 As	1 72	215.10 ppb	0.22	200.00	90 - 110	107.6	
78 Se	1 72	225.90 ppb	0.72	200.00	90 - 110	113.0	Fail
88 Sr	2 115	211.90 ppb	3.50	200.00	90 - 110	106.0	
95 Mo	2 115	209.50 ppb	3.10	200.00	90 - 110	104.8	
107 Ag	2 115	205.10 ppb	4.14	200.00	90 - 110	102.6	
111 Cd	2 115	214.70 ppb	3.77	200.00	90 - 110	107.4	
118 Sn	2 115	214.40 ppb	4.81	200.00	90 - 110	107.2	
121 Sb	2 115	209.90 ppb	4.04	200.00	90 - 110	105.0	
137 Ba	2 115	208.10 ppb	3.97	200.00	90 - 110	104.1	
205 Tl	2 209	226.20 ppb	5.01	200.00	90 - 110	113.1	Fail
208 Pb	2 209	213.90 ppb	5.40	200.00	90 - 110	107.0	

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	164645.33	3.14	301176.25		54.7	70 -	120	ISFail
45 Sc	1	14633.36	0.27	11387.52		128.5	70 -	120	ISFail
45 Sc	2	619455.75	3.98	569049.13		108.9	70 -	120	ISFail
72 Ge	1	9522.88	0.87	7050.31		135.1	70 -	120	ISFail
115 In	2	760929.81	4.93	536581.75		141.8	70 -	120	ISFail
209 Bi	2	572368.31	5.33	414466.09		138.1	70 -	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\083CCV1.D\083CCV1.D#

Date Acquired: Jul 18 2012 06:49 pm Sample Name:
 Acq. Method: DHL_3.m Misc Info:
 Operator: AR Diln Factor:
 Last Cal. Update: Jul 18 2012 11:29 am
 Instrument: ICPMS3

CCV3-120718
 CCV ICPMS_TW

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7	Li	2 45	148.70 ppb	3.84	200.00	90 - 110	74.4 Fail
9	Be	2 45	176.70 ppb	2.73	200.00	90 - 110	88.4 Fail
11	B	2 45	169.50 ppb	3.40	200.00	90 - 110	84.8 Fail
23	Na	1 45	5303.00 ppb	3.82	5000.00	90 - 110	106.1
24	Mg	1 45	5306.00 ppb	2.40	5000.00	90 - 110	106.1
27	Al	1 45	5036.00 ppb	2.10	5000.00	90 - 110	100.7
39	K	1 45	5466.00 ppb	2.17	5000.00	90 - 110	109.3
44	Ca	2 45	5529.00 ppb	4.14	5000.00	90 - 110	110.6 Fail
47	Ti	1 45	221.60 ppb	4.84	200.00	90 - 110	110.8 Fail
51	V	1 45	214.50 ppb	1.81	200.00	90 - 110	107.3
52	Cr	1 45	222.60 ppb	1.12	200.00	90 - 110	111.3 Fail
55	Mn	1 45	224.20 ppb	2.36	200.00	90 - 110	112.1 Fail
56	Fe	1 72	5111.00 ppb	2.18	5000.00	90 - 110	102.2
59	Co	1 72	209.60 ppb	1.67	200.00	90 - 110	104.8
60	Ni	1 72	209.10 ppb	1.88	200.00	90 - 110	104.6
63	Cu	1 72	205.10 ppb	1.50	200.00	90 - 110	102.6
66	Zn	1 72	210.20 ppb	2.84	200.00	90 - 110	105.1
75	As	1 72	209.80 ppb	1.28	200.00	90 - 110	104.9
78	Se	1 72	217.60 ppb	3.25	200.00	90 - 110	108.8
88	Sr	2 115	212.00 ppb	4.51	200.00	90 - 110	106.0
95	Mo	2 115	207.80 ppb	3.14	200.00	90 - 110	103.9
107	Ag	2 115	203.50 ppb	4.33	200.00	90 - 110	101.8
111	Cd	2 115	208.80 ppb	4.19	200.00	90 - 110	104.4
118	Sn	2 115	218.10 ppb	4.57	200.00	90 - 110	109.1
121	Sb	2 115	187.80 ppb	4.02	200.00	90 - 110	93.9
137	Ba	2 115	208.10 ppb	4.66	200.00	90 - 110	104.1
205	Tl	2 209	226.00 ppb	4.82	200.00	90 - 110	113.0 Fail
208	Pb	2 209	209.90 ppb	5.18	200.00	90 - 110	105.0

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6	Li	2	192886.11	2.05	301176.25	64.0	70 -	120	ISFail
45	Sc	1	14457.17	2.48	11387.52	127.0	70 -	120	ISFail
45	Sc	2	639698.38	3.20	569049.13	112.4	70 -	120	ISFail
72	Ge	1	9205.75	2.20	7050.31	130.6	70 -	120	ISFail
115	In	2	756745.38	3.91	536581.75	141.0	70 -	120	ISFail
209	Bi	2	562796.50	4.20	414466.09	135.8	70 -	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\084CCV1.D\084CCV1.D#

Date Acquired: Jul 18 2012 06:54 pm Sample Name:
 Acq. Method: DHL_3.m Misc Info:
 Operator: AR Diln Factor:
 Last Cal. Update: Jul 18 2012 11:29 am
 Instrument: ICPMS3

CCV3-120718
 CCV ICPMS_TW

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2 45	161.60 ppb	3.97	200.00	90 - 110	80.8	Fail
9 Be	2 45	191.40 ppb	4.37	200.00	90 - 110	95.7	
11 B	2 45	181.30 ppb	3.62	200.00	90 - 110	90.7	
23 Na	1 45	5622.00 ppb	2.35	5000.00	90 - 110	112.4	Fail
24 Mg	1 45	5493.00 ppb	2.66	5000.00	90 - 110	109.9	
27 Al	1 45	5614.00 ppb	2.25	5000.00	90 - 110	112.3	Fail
39 K	1 45	5723.00 ppb	2.59	5000.00	90 - 110	114.5	Fail
44 Ca	2 45	5853.00 ppb	2.63	5000.00	90 - 110	117.1	Fail
47 Ti	1 45	229.10 ppb	1.25	200.00	90 - 110	114.6	Fail
51 V	1 45	229.30 ppb	1.62	200.00	90 - 110	114.7	Fail
52 Cr	1 45	232.50 ppb	1.70	200.00	90 - 110	116.3	Fail
55 Mn	1 45	239.00 ppb	1.96	200.00	90 - 110	119.5	Fail
56 Fe	1 72	5564.00 ppb	2.26	5000.00	90 - 110	111.3	Fail
59 Co	1 72	222.10 ppb	0.46	200.00	90 - 110	111.1	Fail
60 Ni	1 72	222.00 ppb	0.84	200.00	90 - 110	111.0	Fail
63 Cu	1 72	221.10 ppb	1.51	200.00	90 - 110	110.6	Fail
66 Zn	1 72	230.10 ppb	1.42	200.00	90 - 110	115.1	Fail
75 As	1 72	232.10 ppb	1.35	200.00	90 - 110	116.1	Fail
78 Se	1 72	235.50 ppb	2.97	200.00	90 - 110	117.8	Fail
88 Sr	2 115	224.10 ppb	3.13	200.00	90 - 110	112.1	Fail
95 Mo	2 115	226.40 ppb	4.23	200.00	90 - 110	113.2	Fail
107 Ag	2 115	222.30 ppb	4.89	200.00	90 - 110	111.2	Fail
111 Cd	2 115	230.20 ppb	4.59	200.00	90 - 110	115.1	Fail
118 Sn	2 115	227.20 ppb	4.35	200.00	90 - 110	113.6	Fail
121 Sb	2 115	225.40 ppb	4.70	200.00	90 - 110	112.7	Fail
137 Ba	2 115	225.30 ppb	4.70	200.00	90 - 110	112.7	Fail
205 Tl	2 209	243.70 ppb	4.88	200.00	90 - 110	121.9	Fail
208 Pb	2 209	229.50 ppb	5.44	200.00	90 - 110	114.8	Fail

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	163399.58	3.18	301176.25		54.3	70 -	120	ISFail
45 Sc	1	14281.40	2.76	11387.52		125.4	70 -	120	ISFail
45 Sc	2	616423.94	4.07	569049.13		108.3	70 -	120	
72 Ge	1	9071.64	1.20	7050.31		128.7	70 -	120	ISFail
115 In	2	744713.13	5.02	536581.75		138.8	70 -	120	ISFail
209 Bi	2	561693.25	5.09	414466.09		135.5	70 -	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\088LCVL.D\088LCVL.D#

Date Acquired: Jul 18 2012 07:17 pm Sample Name: **LCVL3-120718**
 Acq. Method: DHL_3.m Misc Info: LCVL6020A_W
 Operator: AR Diln Factor: 1.00
 Last Cal. Update: Jul 18 2012 11:29 am
 Instrument: ICPMS3

QC Elements

Element	Conc.	RSD (%)	Expected QC	Range (%)	Rec (%)	Flag
7 Li	2 45	2.23 ppb	2.58	5.00	80 - 120	44.7 Fail
9 Be	2 45	0.79 ppb	5.35	1.00	80 - 120	79.3 Fail
11 B	2 45	17.10 ppb	3.42	5.00	80 - 120	342.0 Fail
23 Na	1 45	86.27 ppb	0.82	100.00	80 - 120	86.3
24 Mg	1 45	106.90 ppb	3.33	100.00	80 - 120	106.9
27 Al	1 45	100.50 ppb	3.48	100.00	80 - 120	100.5
39 K	1 45	99.58 ppb	5.16	100.00	80 - 120	99.6
44 Ca	2 45	97.22 ppb	2.53	100.00	80 - 120	97.2
47 Ti	1 45	6.23 ppb	13.14	5.00	80 - 120	124.6 Fail
51 V	1 45	1.16 ppb	0.69	1.00	80 - 120	116.3
52 Cr	1 45	5.40 ppb	1.58	5.00	80 - 120	108.0
55 Mn	1 45	5.67 ppb	8.07	5.00	80 - 120	113.3
56 Fe	1 72	118.20 ppb	0.88	100.00	80 - 120	118.2
59 Ce	1 72	5.11 ppb	2.09	5.00	80 - 120	102.1
60 Ni	1 72	5.10 ppb	2.27	5.00	80 - 120	102.0
63 Cu	1 72	5.09 ppb	3.08	5.00	80 - 120	101.9
66 Zn	1 72	5.44 ppb	3.64	5.00	80 - 120	108.8
75 As	1 72	5.22 ppb	3.19	5.00	80 - 120	104.4
78 Se	1 72	5.39 ppb	4.38	5.00	80 - 120	107.8
88 Sr	2 115	5.08 ppb	4.51	5.00	80 - 120	101.6
95 Mo	2 115	5.44 ppb	6.74	5.00	80 - 120	108.9
107 Ag	2 115	2.06 ppb	3.30	2.00	80 - 120	103.1
111 Cd	2 115	0.99 ppb	3.27	1.00	80 - 120	98.6
118 Sn	2 115	5.12 ppb	4.89	5.00	80 - 120	102.4
121 Sb	2 115	2.17 ppb	6.65	2.00	80 - 120	108.6
137 Ba	2 115	5.11 ppb	0.94	5.00	80 - 120	102.3
205 Tl	2 209	1.37 ppb	3.82	1.00	80 - 120	136.8 Fail
208 Pb	2 209	1.05 ppb	4.01	1.00	80 - 120	105.1

ISTD Elements

Element	CPS	Mean	RSD (%)	Ref Value	Rec (%)	QC	Range (%)	Flag
6 Li	2	227738.17	3.15	301176.25	75.6	70 -	120	
45 Sc	1	15139.09	2.13	11387.52	132.9	70 -	120	ISFail
45 Sc	2	659894.81	2.43	569049.13	116.0	70 -	120	
72 Ge	1	9842.02	1.02	7050.31	139.6	70 -	120	ISFail
115 In	2	771757.56	3.35	536581.75	143.8	70 -	120	ISFail
209 Bi	2	582257.31	4.61	414466.09	140.5	70 -	120	ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\090_CCB.D\090_CCB.D#

Date Acquired: Jul 18 2012 07:28 pm Sample Name: CCB3-120718
 Acq. Method: DHL_3.m Misc Info: CCB ICPMS_TW
 Operator: AR Diln Factor: 1.00
 Last Cal. Update: Jul 18 2012 11:29 am
 Instrument: ICPMS3

QC Elements

Element		Conc.	RSD(%)	MDL S	MDL Aq	Flag
7 Li	2 45	-1.402 ppb	4.90	2.00	2.00	
9 Be	2 45	-0.057 ppb	24.43	0.10	0.30	
11 B	2 45	-1.126 ppb	3.64	10.00	10.00	
23 Na	1 45	-24.280 ppb	1.24	50.00	#####	
24 Mg	1 45	2.445 ppb	7.78	50.00	#####	
27 Al	1 45	1.010 ppb	4.60	50.00	10.00	
39 K	1 45	-10.170 ppb	7.07	50.00	#####	
44 Ca	2 45	-7.498 ppb	7.17	50.00	#####	
47 Ti	1 45	0.010 ppb	99.97	4.00	3.00	
51 V	1 45	0.031 ppb	5.67	4.00	3.00	
52 Cr	1 45	-0.012 ppb	19.57	2.00	2.00	
55 Mn	1 45	0.066 ppb	10.33	2.00	3.00	
56 Fe	1 72	2.589 ppb	2.86	50.00	50.00	
59 Co	1 72	0.006 ppb	17.23	2.00	3.00	
60 Ni	1 72	-0.079 ppb	6.79	2.00	3.00	
63 Cu	1 72	0.000 ppb	6.88	2.00	2.00	
66 Zn	1 72	-0.254 ppb	21.91	4.00	2.00	
75 As	1 72	-0.050 ppb	6.86	2.00	2.00	
78 Se	1 72	-0.200 ppb	38.43	0.60	2.00	
88 Sr	2 115	0.038 ppb	9.38	4.00	3.00	
95 Mo	2 115	0.129 ppb	11.25	2.00	2.00	
107 Ag	2 115	0.016 ppb	23.19	0.40	1.00	
111 Cd	2 115	-0.038 ppb	23.38	0.40	0.30	
118 Sn	2 115	-0.106 ppb	9.39	4.00	3.00	
121 Sb	2 115	0.061 ppb	7.50	2.00	0.80	
137 Ba	2 115	0.015 ppb	16.37	2.00	3.00	
205 Tl	2 209	0.118 ppb	2.94	2.00	0.50	
208 Pb	2 209	-0.002 ppb	10.81	0.40	0.30	

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	227507.34	2.66	301176.25	75.5	70 -	120	
45 Sc	1	15335.08	1.31	11387.52	134.7	70 -	120	ISFail
45 Sc	2	655115.06	3.67	569049.13	115.1	70 -	120	
72 Ge	1	9905.85	0.81	7050.31	140.5	70 -	120	ISFail
115 In	2	769302.13	4.62	536581.75	143.4	70 -	120	ISFail
209 Bi	2	578888.69	6.11	414466.09	139.7	70 -	120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\093SMPL.D\093SMPL.D#

Date Acquired: Jul 18 2012 07:45 pm Sample Name: **1207088-20A**
 Acq. Method: DHL_3.m Misc Info: SAMP6020A_W
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:29 am
 Instrument: ICPMS3

QC Elements

Element	Conc.	Corr.	Con	RSD (%)	High Limit	Flag	
7 Li	2 45	3.240 ppb	0.00	3.40	500.00	J	Li
9 Be	2 45	-0.070 ppb	0.00	29.40	2000.00	ND	Be
11 B	2 45	169.600 ppb	0.00	5.41	2000.00	>RL	B
23 Na	1 45	51900.000 ppb	0.00	2.89	25000.00	OUTCAL	Na
24 Mg	1 45	8747.000 ppb	0.00	2.95	25000.00	>RL	Mg
27 Al	1 45	9.460 ppb	0.00	9.50	10000.00	ND	Al
39 K	1 45	3808.000 ppb	0.00	1.98	25000.00	>RL	K
44 Ca	2 45	142200.000 ppb	0.00	4.41	25000.00	OUTCAL	Ca
47 Ti	1 45	0.049 ppb	0.00	43.30	500.00	ND	Ti
51 V	1 45	0.081 ppb	0.00	6.74	2000.00	ND	V
52 Cr	1 45	0.001 ppb	0.00	4.59	2000.00	ND	Cr
55 Mn	1 45	1633.000 ppb	0.00	1.94	2000.00	>RL	Mn
56 Fe	1 72	2850.000 ppb	0.00	2.58	10000.00	>RL	Fe
59 Co	1 72	2.057 ppb	0.00	1.60	2000.00	ND	Co
60 Ni	1 72	1.781 ppb	0.00	2.03	2000.00	ND	Ni
63 Cu	1 72	0.322 ppb	0.00	3.50	2000.00	ND	Cu
66 Zn	1 72	2.233 ppb	0.00	7.52	2000.00	J	Zn
75 As	1 72	32.450 ppb	0.00	1.96	2000.00	>RL	As
78 Se	1 72	0.174 ppb	0.00	18.15	2000.00	ND	Se
88 Sr	2 115	393.700 ppb	0.00	5.92	500.00	>RL	Sr
95 Mo	2 115	12.430 ppb	0.00	6.80	500.00	>RL	Mo
107 Ag	2 115	0.018 ppb	0.00	35.50	500.00	ND	Ag
111 Cd	2 115	-0.019 ppb	0.00	14.92	2000.00	ND	Cd
118 Sn	2 115	0.008 ppb	0.00	2.97	500.00	ND	Sn
121 Sb	2 115	1.051 ppb	0.00	3.67	500.00	J	Sb
137 Ba	2 115	201.300 ppb	0.00	6.39	2000.00	>RL	Ba
205 Tl	2 209	0.068 ppb	0.00	7.68	2000.00	ND	Tl
208 Pb	2 209	0.051 ppb	0.00	10.49	2000.00	ND	Pb

ISTD Elements

Element	CPS	Mean	RSD (%)	Ref Value	Rec (%)	QC	Range (%)	Flag
6 Li	2	200788.55	4.32	301176.25	66.7	70 -	120	ISFail
45 Sc	1	14124.76	1.67	11387.52	124.0	70 -	120	ISFail
45 Sc	2	637082.25	5.21	569049.13	112.0	70 -	120	
72 Ge	1	9224.64	1.12	7050.31	130.8	70 -	120	ISFail
115 In	2	733392.94	6.52	536581.75	136.7	70 -	120	ISFail
209 Bi	2	533040.25	6.34	414466.09	128.6	70 -	120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\094SMPL.D\094SMPL.D#

Date Acquired: Jul 18 2012 07:51 pm
 Acq. Method: DHL_3.m
 Operator: AR
 Last Cal. Update: Jul 18 2012 11:29 am
 Instrument: ICPMS3

Sample Name: **1207088-21A**
 Misc Info: SAMP6020A_W
 Bench Diln: 1.00

QC Elements

Element		Conc.	Corr.	Con	RSD(%)	High Limit	Flag		
7 Li	2	45	15.460	ppb	0.00	1.24	500.00	>RL	Li
9 Be	2	45	0.386	ppb	0.00	14.15	2000.00	J	Be
11 B	2	45	289.400	ppb	0.00	2.64	2000.00	>RL	B
23 Na	1	45	209100.000	ppb	0.00	2.90	25000.00	OUTCAL	Na
24 Mg	1	45	6351.000	ppb	0.00	2.78	25000.00	>RL	Mg
27 Al	1	45	1058.000	ppb	0.00	4.53	10000.00	>RL	Al
39 K	1	45	2688.000	ppb	0.00	3.70	25000.00	>RL	K
44 Ca	2	45	193500.000	ppb	0.00	2.16	25000.00	OUTCAL	Ca
47 Ti	1	45	12.240	ppb	0.00	6.72	500.00	>RL	Ti
51 V	1	45	3.891	ppb	0.00	5.77	2000.00	J	V
52 Cr	1	45	1.162	ppb	0.00	2.90	2000.00	ND	Cr
55 Mn	1	45	337.700	ppb	0.00	3.79	2000.00	>RL	Mn
56 Fe	1	72	2789.000	ppb	0.00	3.58	10000.00	>RL	Fe
59 Co	1	72	3.091	ppb	0.00	1.51	2000.00	J	Co
60 Ni	1	72	4.136	ppb	0.00	4.59	2000.00	J	Ni
63 Cu	1	72	0.231	ppb	0.00	11.40	2000.00	ND	Cu
66 Zn	1	72	41.600	ppb	0.00	4.13	2000.00	>RL	Zn
75 As	1	72	6.806	ppb	0.00	1.23	2000.00	>RL	As
78 Se	1	72	1.911	ppb	0.00	15.98	2000.00	ND	Se
88 Sr	2	115	422.200	ppb	0.00	1.39	500.00	>RL	Sr
95 Mo	2	115	44.060	ppb	0.00	1.75	500.00	>RL	Mo
107 Ag	2	115	0.006	ppb	0.00	4.95	500.00	ND	Ag
111 Cd	2	115	0.328	ppb	0.00	6.58	2000.00	J	Cd
118 Sn	2	115	0.009	ppb	0.00	5.80	500.00	ND	Sn
121 Sb	2	115	130.800	ppb	0.00	3.71	500.00	>RL	Sb
137 Ba	2	115	70.020	ppb	0.00	3.95	2000.00	>RL	Ba
205 Tl	2	209	0.055	ppb	0.00	4.81	2000.00	ND	Tl
208 Pb	2	209	3.545	ppb	0.00	3.33	2000.00	>RL	Pb

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	220463.64	2.72		301176.25	73.2	70 -	120	
45 Sc	1	14187.75	6.04		11387.52	124.6	70 -	120	ISFail
45 Sc	2	698631.56	2.51		569049.13	122.8	70 -	120	ISFail
72 Ge	1	9059.86	5.50		7050.31	128.5	70 -	120	ISFail
115 In	2	752918.19	3.03		536581.75	140.3	70 -	120	ISFail
209 Bi	2	538146.06	3.87		414466.09	129.8	70 -	120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\095SMPL.D\095SMPL.D#

Date Acquired: Jul 18 2012 07:56 pm
 Acq. Method: DHL_3.m
 Operator: AR
 Last Cal. Update: Jul 18 2012 11:29 am
 Instrument: ICPMS3

Sample Name: **1207088-22A**
 Misc Info: SAMP6020A_W
 Bench Diln: 1.00

QC Elements

Element	Conc.	Corr.	Con	RSD (%)	High Limit	Flag	
7 Li	2 45	5.504 ppb	0.00	3.01	500.00	>RL	Li
9 Be	2 45	-0.072 ppb	0.00	9.35	2000.00	ND	Be
11 B	2 45	88.070 ppb	0.00	3.60	2000.00	>RL	B
23 Na	1 45	12210.000 ppb	0.00	2.93	25000.00	>RL	Na
24 Mg	1 45	6928.000 ppb	0.00	2.23	25000.00	>RL	Mg
27 Al	1 45	48.900 ppb	0.00	1.69	10000.00	>RL	Al
39 K	1 45	2987.000 ppb	0.00	3.63	25000.00	>RL	K
44 Ca	2 45	140600.000 ppb	0.00	2.63	25000.00	OUTCAL	Ca
47 Ti	1 45	1.139 ppb	0.00	28.48	500.00	ND	Ti
51 V	1 45	4.221 ppb	0.00	4.21	2000.00	J	V
52 Cr	1 45	0.073 ppb	0.00	11.54	2000.00	ND	Cr
55 Mn	1 45	68.480 ppb	0.00	2.31	2000.00	>RL	Mn
56 Fe	1 72	353.100 ppb	0.00	1.41	10000.00	>RL	Fe
59 Co	1 72	0.957 ppb	0.00	1.81	2000.00	ND	Co
60 Ni	1 72	1.414 ppb	0.00	2.38	2000.00	ND	Ni
63 Cu	1 72	4.241 ppb	0.00	2.12	2000.00	J	Cu
66 Zn	1 72	4.035 ppb	0.00	6.30	2000.00	J	Zn
75 As	1 72	5.450 ppb	0.00	1.28	2000.00	>RL	As
78 Se	1 72	3.029 ppb	0.00	4.56	2000.00	J	Se
88 Sr	2 115	335.600 ppb	0.00	3.50	500.00	>RL	Sr
95 Mo	2 115	11.460 ppb	0.00	2.32	500.00	>RL	Mo
107 Ag	2 115	0.007 ppb	0.00	19.81	500.00	ND	Ag
111 Cd	2 115	0.001 ppb	0.00	81.97	2000.00	ND	Cd
118 Sn	2 115	-0.042 ppb	0.00	12.31	500.00	ND	Sn
121 Sb	2 115	428.500 ppb	0.00	2.93	500.00	>RL	Sb
137 Ba	2 115	108.700 ppb	0.00	2.25	2000.00	>RL	Ba
205 Tl	2 209	0.083 ppb	0.00	2.72	2000.00	ND	Tl
208 Pb	2 209	1.004 ppb	0.00	5.99	2000.00	>RL	Pb

ISTD Elements

Element	CPS	Mean	RSD (%)	Ref Value	Rec (%)	QC	Range (%)	Flag
6 Li	2	203741.47	3.71	301176.25	67.6	70 -	120	ISFail
45 Sc	1	13743.53	2.43	11387.52	120.7	70 -	120	ISFail
45 Sc	2	601879.06	3.67	569049.13	105.8	70 -	120	
72 Ge	1	8737.19	1.35	7050.31	123.9	70 -	120	ISFail
115 In	2	678594.44	4.35	536581.75	126.5	70 -	120	ISFail
209 Bi	2	503897.50	5.67	414466.09	121.6	70 -	120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\096SMPL.D\096SMPL.D#

Date Acquired: Jul 18 2012 08:02 pm Sample Name: **1207088-23A**
 Acq. Method: DHL_3.m Misc Info: SAMPICPMS_TW
 Operator: AR Bench Diln: 1.00
 Last Cal. Update: Jul 18 2012 11:29 am
 Instrument: ICPMS3

QC Elements

Element	Conc.	Corr.	Con	RSD(%)	High Limit	Flag	
7 Li	2 45	-1.106	ppb	0.00	1.26 500.00	ND	Li
9 Be	2 45	-0.086	ppb	0.00	51.70 2000.00	ND	Be
11 B	2 45	19.200	ppb	0.00	2.45 2000.00	J	B
23 Na	1 45	180.100	ppb	0.00	5.37 25000.00	>RL	Na
24 Mg	1 45	16.890	ppb	0.00	6.85 25000.00	ND	Mg
27 Al	1 45	7.658	ppb	0.00	10.00 10000.00	ND	Al
39 K	1 45	1.950	ppb	0.00	4.16 25000.00	ND	K
44 Ca	2 45	234.500	ppb	0.00	12.34 25000.00	>RL	Ca
47 Ti	1 45	0.231	ppb	0.00	86.60 500.00	ND	Ti
51 V	1 45	0.004	ppb	0.00	21.26 2000.00	ND	V
52 Cr	1 45	-0.023	ppb	0.00	1.01 2000.00	ND	Cr
55 Mn	1 45	1.094	ppb	0.00	4.40 2000.00	ND	Mn
56 Fe	1 72	11.690	ppb	0.00	8.66 10000.00	ND	Fe
59 Co	1 72	-0.006	ppb	0.00	23.92 2000.00	ND	Co
60 Ni	1 72	-0.085	ppb	0.00	23.51 2000.00	ND	Ni
63 Cu	1 72	0.032	ppb	0.00	12.44 2000.00	ND	Cu
66 Zn	1 72	3.063	ppb	0.00	0.44 2000.00	J	Zn
75 As	1 72	-0.053	ppb	0.00	6.38 2000.00	ND	As
78 Se	1 72	-0.167	ppb	0.00	5.41 2000.00	ND	Se
88 Sr	2 115	0.543	ppb	0.00	12.40 500.00	ND	Sr
95 Mo	2 115	0.175	ppb	0.00	5.41 500.00	ND	Mo
107 Ag	2 115	0.000	ppb	0.00	15.06 500.00	ND	Ag
111 Cd	2 115	-0.044	ppb	0.00	27.52 2000.00	ND	Cd
118 Sn	2 115	-0.114	ppb	0.00	6.06 500.00	ND	Sn
121 Sb	2 115	0.538	ppb	0.00	6.91 500.00	ND	Sb
137 Ba	2 115	0.356	ppb	0.00	9.37 2000.00	ND	Ba
205 Tl	2 209	0.002	ppb	0.00	7.83 2000.00	ND	Tl
208 Pb	2 209	-0.020	ppb	0.00	3.86 2000.00	ND	Pb

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	226095.02	1.69	301176.25	75.1	70 -	120	
45 Sc	1	14456.71	1.63	11387.52	127.0	70 -	120	ISFail
45 Sc	2	628211.44	2.78	569049.13	110.4	70 -	120	
72 Ge	1	9282.47	1.06	7050.31	131.7	70 -	120	ISFail
115 In	2	712672.63	3.78	536581.75	132.8	70 -	120	ISFail
209 Bi	2	534672.56	5.52	414466.09	129.0	70 -	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\097CCV1.D\097CCV1.D#

Date Acquired: Jul 18 2012 08:07 pm Sample Name:
 Acq. Method: DHL_3.m Misc Info:
 Operator: AR Diln Factor:
 Last Cal. Update: Jul 18 2012 11:29 am
 Instrument: ICPMS3

CCV4-120718
 CCV ICPMS_TW

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2 45	164.30 ppb	2.00	200.00	90 - 110	82.2	Fail
9 Be	2 45	187.70 ppb	4.30	200.00	90 - 110	93.9	
11 B	2 45	178.70 ppb	4.21	200.00	90 - 110	89.4	Fail
23 Na	1 45	5592.00 ppb	0.77	5000.00	90 - 110	111.8	Fail
24 Mg	1 45	5338.00 ppb	0.41	5000.00	90 - 110	106.8	
27 Al	1 45	5279.00 ppb	0.93	5000.00	90 - 110	105.6	
39 K	1 45	5583.00 ppb	1.09	5000.00	90 - 110	111.7	Fail
44 Ca	2 45	5703.00 ppb	4.16	5000.00	90 - 110	114.1	Fail
47 Ti	1 45	219.60 ppb	2.07	200.00	90 - 110	109.8	
51 V	1 45	220.70 ppb	1.04	200.00	90 - 110	110.4	Fail
52 Cr	1 45	220.80 ppb	0.78	200.00	90 - 110	110.4	Fail
55 Mn	1 45	228.10 ppb	0.72	200.00	90 - 110	114.1	Fail
56 Fe	1 72	5227.00 ppb	0.84	5000.00	90 - 110	104.5	
59 Co	1 72	209.00 ppb	0.61	200.00	90 - 110	104.5	
60 Ni	1 72	208.90 ppb	1.04	200.00	90 - 110	104.5	
63 Cu	1 72	207.90 ppb	1.56	200.00	90 - 110	104.0	
66 Zn	1 72	218.00 ppb	1.77	200.00	90 - 110	109.0	
75 As	1 72	217.40 ppb	0.71	200.00	90 - 110	108.7	
78 Se	1 72	225.40 ppb	1.24	200.00	90 - 110	112.7	Fail
88 Sr	2 115	217.60 ppb	5.06	200.00	90 - 110	108.8	
95 Mo	2 115	212.10 ppb	5.10	200.00	90 - 110	106.1	
107 Ag	2 115	206.60 ppb	4.27	200.00	90 - 110	103.3	
111 Cd	2 115	214.70 ppb	4.75	200.00	90 - 110	107.4	
118 Sn	2 115	216.30 ppb	4.21	200.00	90 - 110	108.2	
121 Sb	2 115	211.30 ppb	3.78	200.00	90 - 110	105.7	
137 Ba	2 115	209.70 ppb	3.86	200.00	90 - 110	104.9	
205 Tl	2 209	226.70 ppb	4.88	200.00	90 - 110	113.4	Fail
208 Pb	2 209	215.90 ppb	4.04	200.00	90 - 110	108.0	

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	180145.25	5.12	301176.25		59.8	70 -	120	ISFail
45 Sc	1	13442.92	0.74	11387.52		118.0	70 -	120	
45 Sc	2	604957.50	3.73	569049.13		106.3	70 -	120	
72 Ge	1	8586.17	0.82	7050.31		121.8	70 -	120	ISFail
115 In	2	679166.06	4.79	536581.75		126.6	70 -	120	ISFail
209 Bi	2	507734.31	4.96	414466.09		122.5	70 -	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\098CCV1.D\098CCV1.D#

Date Acquired: Jul 18 2012 08:13 pm Sample Name:
 Acq. Method: DHL_3.m Misc Info:
 Operator: AR Diln Factor:
 Last Cal. Update: Jul 18 2012 11:29 am
 Instrument: ICPMS3

CCV4-120718
 CCV ICPMS_TW

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7	Li	2 45	154.60 ppb	3.58	200.00	90 - 110	77.3 Fail
9	Be	2 45	177.50 ppb	2.74	200.00	90 - 110	88.8 Fail
11	B	2 45	163.00 ppb	2.75	200.00	90 - 110	81.5 Fail
23	Na	1 45	5337.00 ppb	2.24	5000.00	90 - 110	106.7
24	Mg	1 45	5247.00 ppb	2.26	5000.00	90 - 110	104.9
27	Al	1 45	4943.00 ppb	2.05	5000.00	90 - 110	98.9
39	K	1 45	5440.00 ppb	1.91	5000.00	90 - 110	108.8
44	Ca	2 45	5444.00 ppb	3.25	5000.00	90 - 110	108.9
47	Ti	1 45	210.90 ppb	1.85	200.00	90 - 110	105.5
51	V	1 45	207.10 ppb	0.77	200.00	90 - 110	103.6
52	Cr	1 45	213.00 ppb	0.99	200.00	90 - 110	106.5
55	Mn	1 45	217.40 ppb	2.07	200.00	90 - 110	108.7
56	Fe	1 72	5015.00 ppb	0.70	5000.00	90 - 110	100.3
59	Co	1 72	204.30 ppb	1.29	200.00	90 - 110	102.2
60	Ni	1 72	201.90 ppb	1.75	200.00	90 - 110	101.0
63	Cu	1 72	200.30 ppb	1.82	200.00	90 - 110	100.2
66	Zn	1 72	206.60 ppb	1.60	200.00	90 - 110	103.3
75	As	1 72	202.80 ppb	1.33	200.00	90 - 110	101.4
78	Se	1 72	208.70 ppb	0.60	200.00	90 - 110	104.4
88	Sr	2 115	209.80 ppb	3.16	200.00	90 - 110	104.9
95	Mo	2 115	202.40 ppb	3.26	200.00	90 - 110	101.2
107	Ag	2 115	197.00 ppb	4.16	200.00	90 - 110	98.5
111	Cd	2 115	203.80 ppb	3.67	200.00	90 - 110	101.9
118	Sn	2 115	214.00 ppb	4.19	200.00	90 - 110	107.0
121	Sb	2 115	180.90 ppb	4.32	200.00	90 - 110	90.5
137	Ba	2 115	203.40 ppb	4.89	200.00	90 - 110	101.7
205	Tl	2 209	217.00 ppb	7.22	200.00	90 - 110	108.5
208	Pb	2 209	206.30 ppb	4.78	200.00	90 - 110	103.2

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6	Li	2	201877.58	3.05	301176.25	67.0	70 -	120	ISFail
45	Sc	1	13413.98	0.39	11387.52	117.8	70 -	120	
45	Sc	2	606860.81	3.66	569049.13	106.6	70 -	120	
72	Ge	1	8480.10	2.91	7050.31	120.3	70 -	120	ISFail
115	In	2	668673.19	4.23	536581.75	124.6	70 -	120	ISFail
209	Bi	2	495091.59	4.15	414466.09	119.5	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\103LCVL.D\103LCVL.D#

Date Acquired: Jul 18 2012 08:41 pm Sample Name: **LCVL4-120718**
 Acq. Method: DHL_3.m Misc Info: LCVL6020A_W
 Operator: AR Diln Factor: 1.00
 Last Cal. Update: Jul 18 2012 11:29 am
 Instrument: ICPMS3

QC Elements

Element		Conc.	RSD(%)	Expected QC	Range(%)	Rec(%)	Flag
7 Li	2 45	2.70 ppb	3.10	5.00	80 - 120	54.0	Fail
9 Be	2 45	0.85 ppb	8.57	1.00	80 - 120	85.4	
11 B	2 45	15.84 ppb	4.41	5.00	80 - 120	316.8	Fail
23 Na	1 45	92.17 ppb	0.85	100.00	80 - 120	92.2	
24 Mg	1 45	107.30 ppb	2.94	100.00	80 - 120	107.3	
27 Al	1 45	101.50 ppb	2.13	100.00	80 - 120	101.5	
39 K	1 45	101.70 ppb	1.31	100.00	80 - 120	101.7	
44 Ca	2 45	100.50 ppb	3.05	100.00	80 - 120	100.5	
47 Ti	1 45	5.33 ppb	16.87	5.00	80 - 120	106.6	
51 V	1 45	1.08 ppb	1.86	1.00	80 - 120	107.7	
52 Cr	1 45	5.26 ppb	2.13	5.00	80 - 120	105.2	
55 Mn	1 45	5.32 ppb	2.64	5.00	80 - 120	106.4	
56 Fe	1 72	117.10 ppb	1.09	100.00	80 - 120	117.1	
59 Co	1 72	5.07 ppb	0.37	5.00	80 - 120	101.3	
60 Ni	1 72	4.92 ppb	3.92	5.00	80 - 120	98.4	
63 Cu	1 72	5.19 ppb	2.40	5.00	80 - 120	103.9	
66 Zn	1 72	4.99 ppb	2.30	5.00	80 - 120	99.9	
75 As	1 72	5.02 ppb	3.97	5.00	80 - 120	100.3	
78 Se	1 72	5.12 ppb	5.17	5.00	80 - 120	102.4	
88 Sr	2 115	5.13 ppb	2.26	5.00	80 - 120	102.7	
95 Mo	2 115	5.40 ppb	2.39	5.00	80 - 120	107.9	
107 Ag	2 115	2.05 ppb	5.32	2.00	80 - 120	102.7	
111 Cd	2 115	1.06 ppb	5.11	1.00	80 - 120	105.8	
118 Sn	2 115	5.08 ppb	2.75	5.00	80 - 120	101.6	
121 Sb	2 115	2.16 ppb	6.53	2.00	80 - 120	108.1	
137 Ba	2 115	4.98 ppb	2.60	5.00	80 - 120	99.6	
205 Tl	2 209	1.20 ppb	3.07	1.00	80 - 120	120.4	Fail
208 Pb	2 209	1.04 ppb	2.96	1.00	80 - 120	104.2	

ISTD Elements

Element		CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	234137.20	3.27	301176.25		77.7	70 - 120		
45 Sc	1	14151.50	3.36	11387.52		124.3	70 - 120		ISFail
45 Sc	2	632042.94	4.55	569049.13		111.1	70 - 120		
72 Ge	1	8871.06	0.91	7050.31		125.8	70 - 120		ISFail
115 In	2	689336.31	5.13	536581.75		128.5	70 - 120		ISFail
209 Bi	2	517926.13	5.92	414466.09		125.0	70 - 120		ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\12G18k01.B\105_CCB.D\105_CCB.D#

Date Acquired:	Jul 18 2012 08:53 pm	Sample Name:	CCB4-120718
Acq. Method:	DHL_3.m	Misc Info:	CCB ICPMS_TW
Operator:	AR	Diln Factor:	1.00
Last Cal. Update:	Jul 18 2012 11:29 am		
Instrument:	ICPMS3		

QC Elements

Element		Conc.	RSD(%)	MDL S	MDL Aq	Flag
7 Li	2 45	-1.090 ppb	4.08	2.00	2.00	
9 Be	2 45	-0.077 ppb	37.12	0.10	0.30	
11 B	2 45	-1.793 ppb	0.70	10.00	10.00	
23 Na	1 45	-6.417 ppb	1.36	50.00	#####	
24 Mg	1 45	1.632 ppb	28.53	50.00	#####	
27 Al	1 45	0.472 ppb	3.25	50.00	10.00	
39 K	1 45	-9.148 ppb	2.05	50.00	#####	
44 Ca	2 45	-7.626 ppb	4.30	50.00	#####	
47 Ti	1 45	-0.012 ppb	86.60	4.00	3.00	
51 V	1 45	0.026 ppb	14.38	4.00	3.00	
52 Cr	1 45	-0.009 ppb	1.83	2.00	2.00	
55 Mn	1 45	0.040 ppb	2.17	2.00	3.00	
56 Fe	1 72	1.687 ppb	4.17	50.00	50.00	
59 Co	1 72	0.002 ppb	12.86	2.00	3.00	
60 Ni	1 72	-0.037 ppb	12.28	2.00	3.00	
63 Cu	1 72	0.019 ppb	3.94	2.00	2.00	
66 Zn	1 72	-0.312 ppb	9.07	4.00	2.00	
75 As	1 72	-0.087 ppb	3.49	2.00	2.00	
78 Se	1 72	-0.140 ppb	29.16	0.60	2.00	
88 Sr	2 115	0.022 ppb	12.79	4.00	3.00	
95 Mo	2 115	0.160 ppb	6.24	2.00	2.00	
107 Ag	2 115	0.021 ppb	28.14	0.40	1.00	
111 Cd	2 115	-0.036 ppb	40.58	0.40	0.30	
118 Sn	2 115	-0.090 ppb	3.40	4.00	3.00	
121 Sb	2 115	0.073 ppb	5.66	2.00	0.80	
137 Ba	2 115	0.017 ppb	22.61	2.00	3.00	
205 Tl	2 209	0.102 ppb	4.42	2.00	0.50	
208 Pb	2 209	-0.014 ppb	10.77	0.40	0.30	

ISTD Elements

Element	CPS	Mean	RSD(%)	Ref Value	Rec(%)	QC	Range(%)	Flag
6 Li	2	240827.27	2.94	301176.25	80.0	70 -	120	
45 Sc	1	13409.33	1.54	11387.52	117.8	70 -	120	
45 Sc	2	633018.44	3.23	569049.13	111.2	70 -	120	
72 Ge	1	8650.24	1.99	7050.31	122.7	70 -	120	ISFail
115 In	2	690345.13	3.90	536581.75	128.7	70 -	120	ISFail
209 Bi	2	517131.88	4.48	414466.09	124.8	70 -	120	ISFail

Appendix 3

Field Notes

CURVE FORMULAS

$$T = R \tan \frac{1}{2} I$$

$$T = \frac{50 \tan \frac{1}{2} I}{\sin \frac{1}{2} D}$$

$$\sin \frac{1}{2} D = \frac{50}{R}$$

$$\sin \frac{1}{2} D = \frac{50 \tan \frac{1}{2} I}{T}$$

$$R = T \cot \frac{1}{2} I$$

$$R = \frac{50}{\sin \frac{1}{2} D}$$

$$E = R \csc \sec \frac{1}{2} I$$

$$E = T \tan \frac{1}{2} I$$

$$\text{Chord def.} = \frac{\text{chord}^2}{R}$$

$$\text{No. chords} = \frac{I}{D}$$

$$\text{Tan. def.} = \frac{1}{2} \text{ chord def.}$$

The square of any distance, divided by twice the radius, will equal the distance from tangent to curve, very nearly.

To find angle for a given distance and deflection.

Rule 1. Multiply the given distance by .01745 (def. for 1° for 1 ft.) and divide given deflection by the product.

Rule 2. Multiply given deflection by 57.3, and divide the product by the given distance.

To find deflection for a given angle and distance. Multiply the angle by .01745, and the product by the distance.

GENERAL DATA

RIGHT ANGLE TRIANGLES. Square the altitude, divide by twice the base. Add quotient to base for hypotenuse.

Given Base 100, Alt. $10.10^2 \div 200 = .5$. $100 + .5 = 100.5$ hyp.

Given Hyp. 100, Alt. $25.25^2 \div 200 = 3.125$. $100 - 3.125 = 96.875$ = Base.

Error in first example, .002; in last, .045.

To find Tons of Rail in one mile of track: multiply weight per yard by 11, and divide by 7.

LEVELING. The correction for curvature and refraction, in feet and decimals of feet is equal to $0.574 d^2$, where d is the distance in miles. The correction for curvature alone is closely, $\frac{1}{3} d^2$. The combined correction is negative.

PROBABLE ERROR. If d_1, d_2, d_3, \dots etc. are the discrepancies of various results from the mean, and if $\sum d^2$ = the sum of the squares of these differences and n = the number of observations, then the probable error of the mean = $\pm 0.6745 \sqrt{\frac{\sum d^2}{n(n-1)}}$

MINUTES IN DECIMALS OF A DEGREE

1'	.0167	11'	.1833	21'	.3500	31'	.5167	41'	.6833	51'	.8500
2	.0333	12	.2000	22	.3667	32	.5333	42	.7000	52	.8667
3	.0500	13	.2167	23	.3833	33	.5500	43	.7167	53	.8833
4	.0667	14	.2333	24	.4000	34	.5667	44	.7333	54	.9000
5	.0833	15	.2500	25	.4167	35	.5833	45	.7500	55	.9167
6	.1000	16	.2667	26	.4333	36	.6000	46	.7667	56	.9333
7	.1167	17	.2833	27	.4500	37	.6167	47	.7833	57	.9500
8	.1333	18	.3000	28	.4667	38	.6333	48	.8000	58	.9667
9	.1500	19	.3167	29	.4833	39	.6500	49	.8167	59	.9833
10	.1667	20	.3333	30	.5000	40	.6667	50	.8333	60	1.0000

INCHES IN DECIMALS OF A FOOT

1-16	3-32	1/8	3-16	1/4	5-16	3/8	1/2	5/8	3/4	7/8
.0052	.0078	.0104	.0156	.0208	.0260	.0313	.0417	.0521	.0625	.0729
1	2	3	4	5	6	7	8	9	10	11
.0833	.1667	.2500	.3333	.4167	.5000	.5833	.6667	.7500	.8333	.9167

7-10-12 Rockwool Industries

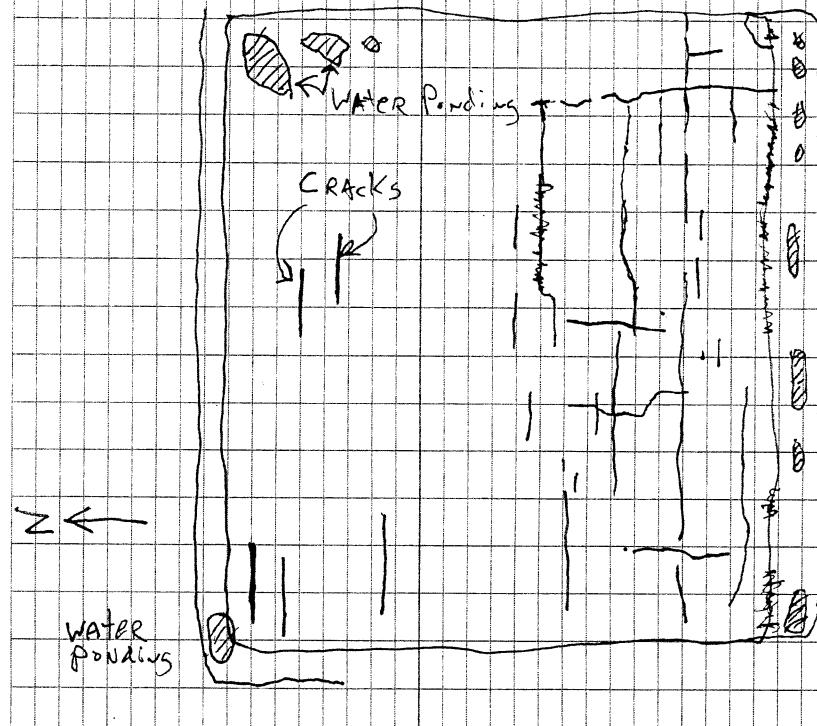
(1)

ES12. AIRS.11

0900 W. Gamblin ARRIVES ON SITE.

B. Shirley is ON-SITE monitoring wells.

0930 W.G. begins MATCON Inspection AFTER TAGATE Safety Review.
MATCON Inspection



(2)

Rockwool Industries

7-10-12

1140

MATCON COVER inspection
Notes: (See Photos)

- Significant surface cracking is evident concentrated along the seams of the asphalt installed. The southern half of the cover contains significantly more cracks and cross cracks than the northern half with some cracks $\approx 3/4"$ wide.
- Older cracks that were patched in the past have been re-opened.
- Cracks appear to penetrate several inches into the cover.
- Some vegetative growth was evident in cracks on the cover.
- Ponding of water was evident on the cover.

7-10-12

Rockwool Industries.

(3)

MATCON PERIMETER ($\approx 8'$ from edge)

AND perimeter drainage inspection:

1230 - North edge of cell is cracked $\approx 2'$ to $3'$ from the edge with significant vegetative growth.

- Drainage along north edge appears to be competent but heavy vegetation hinders inspection and may be clogging drainage pathways.

- Mesquite trees have been established along the perimeter.

- West edge same as north edge with less mesquite growth.

- South edge same as north edge with cracking extending up to ten feet from edge and salt cedar trees.

- East edge same as north edge with salt cedar growth.

- Overall, the patching along the perimeter has held up better than on the cover, but it is still compromised in several locations.

(4)

Rockwool Industries 7-10-12
Inspection of Drainage & Retention Pond:

1250

- DRAINAGE from cover perimeter to is competent with heavy growth of grass and weeds. SALT cedars ARE evident in drainage coming from east edge of cover.
- Retention pond is also heavily vegetated with grass and weeds with three cottonwood trees growing in the middle of it. The berms all appear to be in good shape.
- DRAINAGE pipe from retention pond is clear of debris.
- DRAINAGE from Retention Pond to Hwy 93 APPEARS competent with heavy grass and weed growth. Fence is clear of debris.
- Hwy 93 culvert inlets are free from debris.
- Some siltation is in Pond.

(5)

7-10-12 Rockwool Industries

ARTICULATED BLOCKS (ACBs) and DRAINAGE inspections.

- 1400-ACB integrity is good along the Leon River Embankment. Although heavily vegetated, NO WASHOUTS OR STRUCTURAL FAILURES WERE noted.
- No fence is evident along EAST side of North property (SIGNS ARE present). A drainage SWALE runs along the property line.
 - DRAINAGE in middle of N.Property is in good condition with the RIPRAP placed in it.
 - DRAINAGE inlets and outlets are in good condition ON culvert adjacent (west) of CEMETARY. Inlet next to concrete plant has some minor debris.
 - A well worn foot path is evident from CEMETARY property on to the North property (east of CEMETARY) to a fishing spot

(6)

Rockwool Industries 7-10-12

next to Leon River on the
Rockwool property.

1520-A new fence is evident
between cemetery and concrete
plant but it does not extend
down to the river.

-A new fence has been put
up next to the parking
lot on the south side of
the North Property and
around the stock pile yard
of the fiberglass company.

(26) ~~Rockwool Industries - Benton, TX
B. Shirley - ES12.AIRS.11~~

1630 - ~~Pinnacle bollard installation
on MW-28-90. Scarbek
is out of sack cutter. He sent
site to so set more concrete.~~

1730 - Return to site. Begin bollard
install on MW-27-90.

1830 - Complete bollard installation
on MW-27-90. Scarbek
begins to move to each well
location that bollards were
installed and plan off
bollards + add top caps
if needed. Angel (Jesse) moves
over to the North property
to clear out culverts.

1930 - Finish grading culverts on
North property. Complete
cleaning bollards. Scarbek
begins to load their
equipment and trash.
2020 - Depart site. Lock gate.

~~Scarbek 8-3-11~~

7-10-12

(27)

Rockwool INDUSTRIES - BENTON, TX
ES12. AIRS.11 - B. SHIRLEY

0745 - Arrive on site. Unload truck.

Set sampling equipment

0845 - Calibrate HORIBA.

pH = 7 → 14.15 melting

TURB = 0.0 NTU

0900 - Mob to [MW-14] Set up. (No J-Plug (locking)
DTW = DRY ; TD = 41 ft.

0912 - Mob to [MW-17] - No locking, J-Plug
well protector locked.

DTW = 26.23 ft. TD = 31.50 ft.

DTPI = 28.87 - DTW after pump install
= 26.09 ft. + 2.13 ft.

0948 - Start Pump. Pumping Rate = 45 gal/min
#1 PH TURB DO TEMP ORP DTW
1002 6.48 0.153 342 7.49 20.13 -95 27.00
1005 6.49 0.153 317 7.10 17.69 -90 27.41
1003 6.39 0.157 358 6.83 17.15 -81 27.92
1011 6.216 0.141 337.0 6.38 16.49 -70 28.27
1014 6.07 0.185 320 6.04 16.21 -62 28.82
1018 - COLLECT SAMPLE (Metals 6020 A)

Dugged ~ 2.5 gallons.

1025 - Decon pump.

1038 - Mob to MW-11

Bal Slng 7-10-12

(28)

Rockwool IND - BECTON, TX
ES12. AIRS. 11 - B. SHIRLEY
1045 - Set up on MW-10

No locking J-plug (PVC cap)

Well protector was locked

1" sq. tubing hollards around well pad.

DTW = 31.06 ft. TD = 35.65 ft.

DTPI = 35.5 ft. Pump/FlowRate =
335 ml/min.

Time	pH	COND	TURB	DO	Temp	ORP	DTW
1108	5.68	0.113	543	5.80	24.02	17	32.40
1111	5.67	0.138	487.0	4.73	17.64	-2	32.41
1114	5.74	0.144	393.0	3.23	16.64	-13	33.18
1117	5.75	0.146	376.0	3.04	16.34	-15	*
1120	5.77	0.247	375.0	1.84	16.14	-78	*

* w/ below top of pump - unable to gauge below top of pump.

1125 - Collect Sample (Co20 & metals)
Using 0.45 micron filter.
PV = 2 gallons

1130 - Decon Pump.

1139 - Mob to MW-10.

B/S 7-10-12

7-10-12

7-10-12

(29)

Rockwool IND - BECTON, TX
ES12. AIRS. 11 - B. SHIRLEY
1145 - Set up on [MW-10]

No locking J. plug. (PVC cap)

Well protector was locked & in
good shape. 1" sq. tubing, hollards
around well pad. Well pad is loose.

DTW = 27.55 ft. TD = 35.16 ft.

DTPI = 35.00 ft. Flow Rate = ~~75~~ ml/min

1150 - START Pump - Flow Rate = 390 ml/min.

Time	pH	COND	TURB	DO	Temp	ORP	DTW
1155	5.88	0.09	523.0	0.92	23.35	-33	28.0
1158	5.86	0.093	496.0	0.82	18.69	-31	28.48
1201	5.87	0.092	492.0	1.06	17.09	-33	28.96
1204	5.88	0.090	492.0	4.10	15.78	-21	29.59
1207	5.82	0.090	481.0	4.74	16.64	-30	30.11

1215 - Collect Sample (Metals (0020 A))
Using 0.45 micron filter
PV = 2.5 gallons

1223 - Decon Pump.

1235 - Break for lunch.

B/S 7-10-12

7-10-12

(30)

7-10-12

Rockwool IND. - BELTON, TX
ES12. AIRS. 11 - B. SHIRLEY
1400 - Set up on [MW-34-90.]

Locking J- plug present - (no lock on plug). Well Protector was locked & in good shape. (4)

4" steel pipe bollards (installed in Aug 2011) - IN GOOD condition.

DTW = 28.89 ft. - TD = 32.50 ft

DTPI = 32.1 ft.

FLOW RATE = 300 ml/min.

TIME	pH	COND	TURB	DO	TEMP	ORP	DTW
1415	5.70	0.129	-5.0	7.12	23.03	-4	28.98
1418	5.75	0.135	-5.0	7.48	20.08	-14	28.96
1421	5.79	0.140	780	7.54	18.61	-19	29.02
1424	5.78	0.141	637	7.91	17.74	-19	28.98
1427	5.69	0.143	532	8.37	17.17	-14	

1432 - COLLECT SAMPLE (metals 0020 A)

use 0.45 micron filter.

1315 - COLLECT DUP-Z sample

(Metals 0020 A). Use 0.45 micron Filter. PV = 2 Gallons.

*** Concrete pad is loose. (floating on top of ground surface.)

1452 - Mob to MW-9

B/S by 7-10-12

7-10-12

(31)

Rockwool IND. - BELTON, TX
ES12. AIRS. 11 - B. SHIRLEY
1455 - Set up on [MW-9.]

No J- Plug (PVC CAP). Well Protector was locked - in Good condition. 1" SQTURING Bollards around well PAD. Concrete Pad is loose (floating) and leaning over.

DTW = 28.77 ft. - TD = 35.68 ft.

DTPI = 35.1 ft.

FLOW RATE = 290 ml/min.

TIME	pH	COND	TURB	DO	TEMP	ORP	DTW
1517	6.24	0.110	-5.0	5.68	24.61	-77	28.77
1520	6.18	0.113	933	10.37	19.64	-70	28.77
1523	6.08	0.112	-5.0	10.25	18.62	-60	28.77
1526	5.99	0.114	-5.0	9.91	17.98	-51	28.79
1529	5.85	0.114	854	9.71	17.29	-44	28.79

1535 - COLLECT SAMPLE (Metals 0020 a)

USE 0.45 MICRON FILTER
PV = 1.5 Gallons

XXX - Removed some roots from inside PVC Casing @ ~ 25' bgs.

1551 - Mob to MW-33-90

B/S by

7-10-12

(32)

7-10-12
Rockwool IND. - BECTON, TX
ES12. AIRS. 11 - B. SHIRLEY
1558 - Set up on MW-33-90

Locking J-Plug present (not locked)

Well protector locked - in good condition
(4) 4" steel bollards (install Aug 2011)
in good condition. Concrete pad

is loose (flooding) & leaning over.
DTW = 30.11 ft. - TD = 33' ft.

DTPI = 32.5 ft.

FLOW RATE = 300 ml/min.

PVC well casing is broken @ the
12.5 ft. interval.

Time	pH	Cond	TURB	DO	TEMP	ORP	DTW
1627	5.82	0.104	-5.0	8.35	19.44	-8	30.15
1620	5.81	0.108	947	8.18	17.80	-15	30.19
1623	5.83	0.109	822	8.84	17.25	-15	30.19
1626	5.82	0.109	969	8.12	16.92	-14	30.16
1629	5.80	0.110	716	9.83	16.69	-13	30.18

1635 - COLLECT SAMPLE (Metals 6020A)
using a 0.45 micron filter
PV = 2.0 gallons

1650 - Mobi to MW-7

B.S. 7-10-12

7-10-12

Rockwool IND = BECTON, TX

(33)

ES12. AIRS. 11 - B. SHIRLEY
1555 - Set up on MW-7

NO J-Plug present (4" well)- PVC
cap. Well House LID needs new
hinges & new wash sheet metal
is loose. Well PAD is ok.

DTW = 30.35 ft. - TD = 35.60 ft.

DTPI = 35.1 ft.

FLOW RATE = 300 ml/min.

TIME	pH	COND	TURB	DO	TEMP	ORP	DTW
1707	5.72	0.100	818	8.99	24.03	-8	30.55
1710	5.80	0.122	790	10.83	18.70	-18	30.86
1713	5.82	0.125	801	10.65	17.98	-19	31.07
1716	5.79	0.121	962	10.40	17.66	-18	31.26
1719	5.77	0.151	944	9.96	17.43	-19	31.42

1725 - COLLECT SAMPLE (Metals 6020A)

PV = 2 Gallons.

1734 - Mobi to MW-29-~~90~~ 90

B.S. 7-10-12

(34)

Rockwool IND - BECTON, TX
ES12. AIRS. II - B. SHIRLEY
1744 - Set up on [MW-29-90]

locking J-Plug present (not locked). Well protector locked and in good condition. Well pad is in good condition. (4) 4" steel bollards (installed Aug 2011) present & in good condition.

$$DTW = 27.91 \text{ ft.} - TD = 29.92 \text{ ft.}$$

$$DTPI = 29.70 \text{ ft.}$$

$$\text{Flow RATE} = 320 \text{ ml/min.}$$

Time	pH	Cond	TURB	DO	TEMP	ORP	DTW
1756	5.99	0.104	-5.0	2.16	80.42	+48	*
1759	6.06	0.138	-5.0	1.62	18.99	+54	*
1802	6.06	0.807	-5.0	1.60	18.67	-54	*
1807	-	WELL WENT DRY. I will allow well					
1812	P.S.	to recharge & collect a grab sample 7/11.					
	*	unable to gauge. WC is below top of bladder pump. PV = < 1 gallon					

1808 - Decon Pump.

1820 - Mobs to MW-28-90

B. Shirley
7-10-12

(35)

Rockwool IND. - BECTON, TX
ES12. AIRS. II - B. SHIRLEY
1825 - SET UP @ [MW-28-90]

locking J-Plug present (not locked) also J-Plug will not tighten and seal off PVC casing (2") Well Protector was locked & in good condition. Well pad is slightly loose (floating). (4) 4" Steel bollards are in good condition. (Installed Aug 2011).

$$DTW = 30.38 \text{ ft.} - TD = 31.94 \text{ ft.}$$

1.5G ft of water column. Insufficient to use bladder pump. Hand bail well dry & allow to recharge overnight. Collect sample tomorrow (7-11-12).
 $PV \approx \sim 1 \text{ gallon.}$

1840 - Mobs to MW-27-90.

B. Shirley
7-10-12

(36)

7-10-12

Rockwool IND. - Belton, TX
ES12. AIRS. II - B. SHIRLEY

1845 - Set up on [MW-27-90]

- Locking J-Mug present (no lock)
Well protector was locked and is
in good shape. Well pad is
in good shape. (4) 4" Steel
hollards (installed Aug 2011)
- are in good condition.

DTW = 33.92 ft. - TD = 35.4 ft.

1.48 ft. of water column in
well. Not enough water column to
use bladder pump. Hand bailer.
Collect sample tomorrow after
well has recharged.

PV = 1 gallon

1910 - COLLECT ER-1 Sample
(metals 6020 A).

1930 - STOP FOR THE DAY. DEPART
SITE.

B/S

7-10-12

7-11-12

(37) Rockwool IND. - BELTON, TX

ES12. AIRS. II - B. SHIRLEY

0700 - Arrive on Site. CALIBRATE HORIBA.

pH = 6.16 pre cal

pH = 7.02 post cal.

TURB - ERROR CODE 5 - unable
to calibrate.

[MW-29-90]

- 08¹³⁵ (0755) Collect Sample (metals 6020 A)

[MW-28-90]

0810 - Collect SAMPLE (METALS 6020 A).

[MW-27-90]

0823 - COLLECT SAMPLE (METALS 6020 A).

0827 - MOB to MW-30-90

B/S
7-11-12

(38)

7-11-12
 Rockwool IND - BECTON, TX
 ES 12. AIRS. II - B. SHIRLEY
 0833 - Set up on [MW-30-9A]

Locking J-plug present (Not locked).
 Well protector was locked and is in good condition. Well pad is in good condition. (4) 4" Steel bollards (installed Aug 2011) are in good condition.

$$DTW = 27.74 \text{ ft.} - TD = 28.4 \text{ ft.}$$

0.66 ft of WC. Insufficient water column to use pump and collect parameters.
 Hand bail well - Collect sample later today after well was recharged.

$$PV = < 1/4 \text{ gallon}$$

1200 - COLLECT SAMPLE (Metals G120A)

0844 - Mob to MW-16.

Bul/Sig
7-11-12

7-11-12

Rockwool IND - BECTON, TX
 ES 12. AIRS. II - B. SHIRLEY
 0856 - Set up on [MW-16]

No Locking J-Plug present (PVC Cap). Well protector was locked and is in good condition. Well pad in good condition. (4) 4" Steel bollards (installed Aug 2011) in good condition.

$$DTW = DRY \text{ ft.} - TD = 31.5 \text{ ft.}$$

X NO SAMPLE COLLECTED

0903 - Mob to [MW-19]

0905 - Set up. Locking J-plug present (not locked). Well protector locked and in good condition. Well pad is in good condition. (4) 1 1/4" Steel bollards around well pad are in fair condition. (slightly bent).

$$DTW = 31.98 \text{ ft.} - TD = 34.3 \text{ ft.}$$

$$DTPF = 34.0 \text{ ft.}$$

Bul/Sig

7-11-12

(39)

(40) Rockwool 7-11-12
IND. - BELTON, TX
ES12. AIRS. II - B. SHIRLEY
[MW-19 - Cont.]

FLOW RATE = 300 ml/min

TIME	pH	COND	TURB	DO	TEMP	ORP	DTW
0944	6.38	0.107	619	5.43	24.90	46	32.00
0947	6.54	0.123	553	7.47	17.30	26	*
0950	6.56	0.125	523	7.63	16.78	25	*
0953	6.58	0.126	487	8.03	16.24	23	*
0956	6.59	0.128	450	8.08	15.79	22	*

* - DTW not gauged. MW is below top of pump.

PV = 1.5 gallons

0959 - COLLECT SAMPLE (Metals 6020A).

1005 - Decon Pump.

1015 - INSTALL NEW TUBING TO
tubing rack.

1027 - Mob to MW-24-90

Bal 15 lit

7-11-12

7-11-12
ROCKWOOL IND. - BELTON, TX
ES12. AIRS. II - B. SHIRLEY
1032 - Set up on [MW-24-90]
• Locking J-Plug present
(NO COCK). Well protector
was locked & in good condition.
Well pad is in good condition.
(4) 4" steel bollards (installed
in Aug 2011) are in good
condition.

DTW = 32.82 ft. - TD = 40.63 ft.

DTPJ = 40.00 ft.

FLOW RATE = 270 ml/min

TIME	pH	COND	TURB	DO	TEMP	ORP	DTW
1049	6.77	0.155	-5.0	4.24	20.26	-2	32.76
1052	6.69	0.156	785	5.88	17.23	3	32.86
1055	6.66	0.158	684	6.07	16.56	6	32.84
1058	6.64	0.158	618	6.01	16.21	8	32.88
1101	6.61	0.161	540	6.12	15.81	10	32.88

PV = 1.5 gallons

using 0.45 micron filter

1112 - COLLECT SAMPLE (Metals 6020A)

1115 - Decon Pump

1205 - Mob to North Property - MW-20

Bal 15 lit

7-11-12

(42)

Rockwood Ind. - Belton, TX
ES12 AIRS. II - B. SHIRLEY

7-11-12

*-Note- Marilynn Long w/ TCEQ called @ 1100. Wanted an update on sampling @ Rockwood. I told her that I was approx. 1/2 way through the 1st event & should finish up late today. Discussed the issues of wells w/ little or no water & hand sailing the wells w/ little water column. She said that was ok. She is more interested in the lab analysis from the VWS & wants info of the wells that can possibly be sampled - sampled.

Rising

7-11-12

7-11-12

(43)

Rockwood Ind. - Belton, TX
ES12 AIRS. II - B. SHIRLEY

1215 - Set up on MW-20

No Locking J-plug present (PVC cap)
Well Protector is in good condition
and was locked. Well pack is
in good condition. (4) 1 1/4 steel
bollards in good condition

$$DTW = 31.77 \text{ ft.} \quad TD = 39.2 \text{ ft.}$$

$$DTPI = 38.5 \text{ ft.}$$

$$\text{FLOW RATE} = 320 \text{ ml/min}$$

Time	pit	cond	TURB	DO	TEMP	DRP	DTW
1232	6.661	0.665	840	1.57	19.33	12	32.13
1235	6.65	0.790	752	1.58	17.77	4	32.28
1238	6.666	2.50	626	2.29	17.20	4	32.33
1241	6.67	1.47	580	2.80	16.84	3	32.32
1244	6.67	1.44	556	2.76	16.55	3	32.47

1248 - COLLECT SAMPLE (Metals 6020A)
PV = 2 gallons

1300 - Decon Pump.

1305 - Mob to MW-15

Bal Skin

7-11-12

(44)

7-11-12

Rockwool IND. - BELTON, TX
ES12. AIRS.11 - B. SHIRLEY
1310 - Set up on [MW-15]

No locking J-Plug present (PVC Cap). Well protector was locked & is in good condition. Well pad is in good condition. (4) 1 1/4" steel bollards in good condition.

DTW = ? TD = 19.2 ft.

Seems to be a foot wall or debris @ the 19.2 ft. I was unable to get passed the 19.2' interval.

1318 - Mob to MW-22

1324 - Setup. - No locking J-plug present (PVC Cap). Well protector was locked & is in good condition. Concrete well pad is in so good condition. No bollards are present.

DTW = 11.94 ft. TD = 14.56 ft.
DTPI = 14.2 ft.

FLOW RATE = 295 ml/min

Fal 66
7-11-12

7-11-12

(45)

Rockwool IND - BELTON, TX
ES12. AIRS.11 - B. SHIRLEY
[MW-22 - Cont.:]

Time	pH	Cond	TURB	DO	TEMP	ORP	DTW
1333	7.03	0.120	5.0	1.61	83.84	-32	12.47
1336	7.03	0.142	792	0.86	19.82	-33	*
1339	6.98	4.28	679	0.69	18.68	-28	*
1342	6.95	9.99(8)	653	0.00	18.17	-28	*
1345	6.90	9.99(+)	615	0.00	17.96	-22	*

* WL is below top of pump

PV = 1.5 gallons

1357 - COLLECT SAMPLES (Metals 6020A).
1412 - ~~1412~~ Decon Pump

1427 - Mob to MW-21

1429 - Set up on MW-21
No lock J-Plug present (PVC Cap). Well protector locked. Well pad in good condition. No bollards installed

DTW = 9.98 ft.

TD = 15.5 ft.

DTPI = 15 ft.

7/15 (S)

7-11-12

(46) Rockwool IND. - BELTON, TX
ES12-AIRS.11 - B. SHIRLEY
M/N-21 (cont.)

Flow RATE = 260 ml/min.

Time	pH	COND	TURB	DO	TEMP	ORP	DTW
1448	7.47	0.09	-5.0	0.31	23.97	-87	10.29
1451	7.47	0.09	686	0.55	20.89	-72	10.45
1454	7.28	0.09	467	1.30	20.06	-57	10.76
1457	7.21	0.482	379	1.75	20.37	-54	11.09
1500	7.22	9.99(+)	552	0.00	20.20	-61	11.48

PV = 1.5 gallons

- 1504 - COLLECT SAMPLE (METALS 6020A)
- 1532 - COLLECT DUP-1 Sample (Metals 6020A)
- 1507 - Percon Pump.
- 1520 - Mob to MW-38-90

Percon
Slur

7-11-12

(47) Rockwool IND. - BELTON, TX
ES12-AIRS.11 - B. SHIRLEY
1523 - Set up on M/W-38-90
Locking J-Plug present (No lock)
Well protector was locked + in good condition. Well pad is in good condition.
No bollards around well pad.

$$\text{DTW} = 9.89 \text{ ft.} \rightarrow \text{TD} = 12.23 \text{ ft.}$$

$$\text{DTRI} = 12.10 \text{ ft.}$$

Flow RATE = 290 ml/min

Time	pH	COND	TURB	DO	TEMP	ORP	DTW
1530	7.91	0.164	733	1.25	19.53	-128	*
1533	7.84	0.168	690	1.06	18.96	-119	*
1536	7.81	0.772	665	2.67	18.35	-119	*
1539	7.88	9.99(+)	681	0.00	17.82	-128	*
1542	7.83	9.99(+)	787	0.00	17.66	-124	*

* - WL is below top of pump.

- 1546 - COLLECT SAMPLE (Metals 6020A)
- PV = 1 gallon
- 1605 - Percon Pump.
- 1609 - Mob to MW-37-90

Percon
Slur

7-11-12

(48)

Rockwool IND. - BELTON, TX
ES12. AIRS.11 - B. SHIRLEY

7-11-12

- Set up on MW-37-90

- Locking J-plug present (no lock)
- Well protector was locked well
- pad is in good condition,
- No bollards around well pad.

$$DTW = 17.96 \text{ ft.} - TD = 210.3 \text{ ft.}$$

$$DTPI = 25.5 \text{ ft.}$$

$$\text{Flow Rate} = 260 \text{ ml/min.}$$

Time	AFT	COND	TURB	DO	TEMP	ORP	DTW
1621	6.95	0.109	840	1.86	18.43	-26	18.38
1624	7.22	0.113	801	1.99	16.99	-58	18.49
1627	7.57	0.120	718	2.60	16.13	-93	18.54
1630	7.70	0.634	698	1.32	15.76	-107	18.44
1633	7.74	9.998	673	0.00	15.45	-114	18.53

PV = 1 gallon

1638 - COLLECT SAMPLE (Metals (0020A))

1643 - DECON Pump.

1650 - Move to MW-35-90

1653 - T-storm - Stop work.

Bal Slig
7-11-12

7-11-12

(49)

Rockwool IND. - BELTON, TX
ES12. AIRS.11 - B. SHIRLEY

MW-36-90 - Not gauged. Inside of casings
is plugged. (See photos from 5-2011 Command)
1710 - Set up on MW-35-90

J-plug present (no-lock)
Well protector was locked and in
good condition. Well pad is in good
conditions. No bollards around
well pad.

$$DTW = 16.23 \text{ ft.} - TD = 17.3 \text{ ft.}$$

Insufficient water column to use pump.
Hand bail well dry. Sample
after well has recharged.

1740 - Collect ST sample (metals).

1721 - Collect ER-2 sample
(metal (0020A)).

DRUM INVENTORY:

3 - Drums on site containing
range water:
(2) full + (1) $\frac{2}{3}$ full.

1830 - Deposit site.

Bal Slig
7-11-12

(50)

7-11-12

Rockwool IND.- Belton, TX
ES12. AIRS. 11 - B. SHIRLEY

Coring Data: Central Property			
WELL ID	DTP (ft)	DTW (ft)	TD (ft)
MW-7	N.P.	30.35	35.1
MW-9	N.P.	28.77	35.1
MW-10	N.P.	27.55	35.0
MW-11	N.P.	31.06	35.65
MW-14	N.P.	DRY	41.0
MW-16	N.P.	DRY	31.5
MW-17	N.P.	26.23	31.5
MW-19	N.P.	31.98	34.3
MW-24-90	N.P.	32.82	40.63
MW-27-90	N.P.	33.92	35.4
MW-28-90	N.P.	30.38	31.94
MW-29-90	N.P.	27.91	29.92
MW-30-90	N.P.	27.74	28.4
MW-33-90	N.P.	30.11	33.0
MW-34-90	N.P.	28.89	32.5
DUP-2 (MW-34-90)			7-10-12 / 1315
DUP-1 (MW-21)			7-11-12 / 1532
ER-1			7-10-12 / 1940
ER-2			7-11-12 / 1721

Bul Slab

7-11-12

7-11-12

(51)

Rockwool IND.- BELTON, TX
ES12. AIRS. 11 - B. SHIRLEY

Coring Data: NORTH PROPERTY			
WELL ID	DTP (ft)	DTW (ft)	Date/Time-Sample Collected
MW-15	N.P.	DRY	?
MW-20	N.P.	31.77	39.2
MW-24	N.P.	9.98	15.5
MW-22	N.P.	11.94	14.56
MW-35-90	N.P.	16.23	17.3
MW-36-90	N.P.	Casing Flipped	NA
MW-37-90	N.P.	17.94	26.3
MW-38-90	N.P.	9.89	12.23

16' line
B 16' 12'